

MacWEEK

25 April 1989 Vol. 3 No. 17

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GA on
32-bit color!

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Flush with success, the Macintosh QuickDraw team unveiled 32-bit color at the NCGA show last week. (From left) Bruce Leak, Laurie Girard, Jean-Charles Mourey, Michael Heller.

Mac's true colors revealed

32-bit QuickDraw, LaserWriter 6.0 debut

By Cliff Lehman and Connie Guglielmo
Philadelphia — As some of its major graphics developers looked on, Apple last week took the true-color plunge and announced its long-awaited 32-bit color extensions to Color QuickDraw.

At the National Computer Graphics Association (NCGA) show here, Apple also announced a new version of its PostScript printer driver. LaserWriter 6.0 contains color extensions that allow most Mac applications to print in color on color PostScript printers and to print color and gray-scale images as halftones on monochrome printers. The driver, to be available in May, See NCGA, Page 9

Plus, Ragtime debut; Claris talks strategy

By Steve Rosenthal
Amsterdam — The unveiling of several European-developed products that may soon reach American shores and an outline of Claris Corp.'s software strategy highlighted last week's large but relatively low-key Macworld Expo here.

Topping the list of new products on display were copies of Format Software's Plus, a HyperCard superset that provides color, large-screen support and a variety of other features lacking from Apple's software, and a pre-release version of MacVox's Ragtime 3, an integrated package that drew raves from show audiences.

Among the high points in Claris' strategy, disclosed in an unusually frank presentation by Yogen Dalal, the company's vice president of development, were:

- ▶ A commitment that all of the Apple spinoff's products will soon "read and write all industry-standard formats."

Omnis 5 gets color, new Mac interface, HyperCard access

By John Battelle
Phoenix, Ariz. — Sporting color, HyperCard access and a new Mac interface, Blyth Software's Omnis 5 database program made its debut last week at Macworld Expo in Amsterdam and the Macintosh Consultants Network conference here.

Known during its development stage as Pebble, Omnis 5 is the program's first upgrade since Version 3.3, which was released in April 1988. It retains and builds on the multi-user and relational capabilities of 3.3, according to Randy Granovetter, marketing manager for Blyth.

Omnis 5, due to ship in May, will offer:

- ▶ **Multiple windows.** These can open simultaneously within a database application.

- ▶ **Color support.** Color graphics will be available in May. See Omnis, Page 9

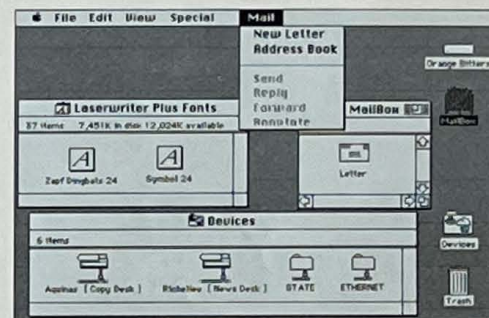
Mac desktop due for refinishing

Prototype Finder supports E-mail, larger directories

By Stephen Howard
Cupertino, Calif. — Apple internal documents and a prototype of the next-generation system software reviewed by MacWEEK reveal that a new Finder now under development will extend the metaphors for icons and windows, put some needed polish on current features and offer new services, such as electronic mail.

Expected to be available by early next year in System Release 7.0, the new Finder will be more extensible than the current version and will handle large directories, networks, international scripts and foreign file systems more effectively than its predecessor.

According to the document, the way the operating system organizes files will be significantly re-worked along the lines of the Desktop Manager, an alternate directory structure used by AppleShare for managing large numbers of files on multiple volumes. The file management facilities will be improved to include faster access to files and more-flexible views



The new Finder, as in this prototype, will support built-in electronic mail and represent fonts, sounds, desk accessories and network entities as icons that can be moved in and out of folders.

of information on the desktop. For example, the trash will be treated like a folder, with its own directory, and will be emptied only at the explicit request of the user. See Finder, Page 8

N.Y. business expo earns respect

By Dan Ruby
New York — It probably won't be a photo finish, but Cambridge Marketing Inc.'s Macintosh Business Conference & Exposition is at least in the Mac trade show horse race after its respectable showing at the Jacob K. Javits Convention Center here last week.

"We went over the top," crowed Roy Einreinhofer, CMI president. "This show proves that we are a viable alternative, and I think this show will emerge as the business and professional show for the Mac market."

The show featured 121 exhibitors, including a large booth from Apple. See Business, Page 8



Macintosh Business Conference & Exposition in New York attracted a reported 18,000 attendees. "This show proves that we are a viable alternative," show organizer Roy Einreinhofer said.

L A T E N E W S

Apple adopts plan to thwart hostile takeover

Cupertino, Calif. — Apple last week adopted a shareholders' rights plan aimed at foiling any future attempt at a hostile takeover. The new plan includes a variety of provisions giving shareholders the right to buy discounted shares in the event of a takeover attempt. Apple said that it is unaware of any current such effort. □

S.F. Macworld Expo hall reserved for April '90

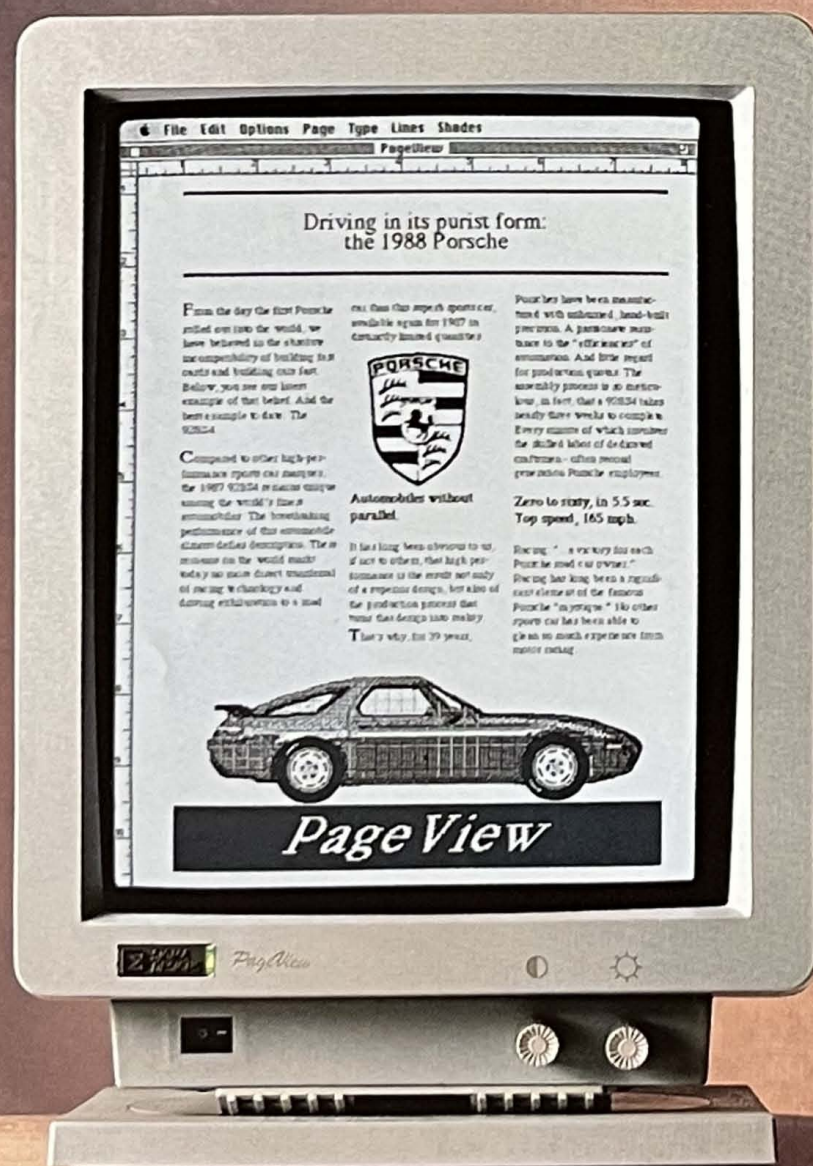
San Francisco — Amid confusion and speculation about the date of the 1990 San Francisco Macworld Expo, Moscone Center's calendar is certain. Macworld event days are scheduled for April 10-13 rather than its traditional January date, according to Julie Burford, director of sales and marketing for the hall.

"This is the only year that Macworld will be in April," said Burford.

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Farallon's Timbuktu 3.0 adds file transfer abilities

By Emily Brower

Washington — Farallon Computing this week introduced a new version of Timbuktu that adds file transfer capabilities to the network screen-sharing software.

Timbuktu 3.0 offers point-to-point file and folder transfers over AppleTalk. Files are transmitted in the foreground but received in the background. With the Exchange Files option, one Mac can copy or remove files on another.

Reese Jones, Farallon president, called Timbuktu an alternative to "sneakernets" and to indirect transfer via a server or electronic mail, which, he said, "take more time than necessary. Since Timbuktu

doesn't require a dedicated server, it provides an easy, reliable and inexpensive way to move files around."

Farallon has improved security to complement the new file transfer features of Timbuktu 3.0. At each networked Mac the user can set passwords for several levels of access so that only colleagues with the appropriate password can send, copy or remove files; observe the screen; or control the machine.

Timbuktu 3.0 is scheduled to ship by midyear for \$149. Upgrades will be \$40 but free to users who purchased after Jan. 15.

Farallon Computing is located at 2201 Dwight Way, Berkeley, Calif. 94704; (415) 849-2331. □

Symmetry unveils KeyPlan

By Dan Ruby

New York — Symmetry Corp. last week revealed its plans to introduce KeyPlan, a new project management program geared for general business users.

Unlike project management software designed to control costs and schedules of a project once under way, KeyPlan focuses on project planning, said Scott Shwartz, Symmetry's president. The program, which will be released this summer at an as-yet-undetermined price, offers an integrated outliner and a

style sheet function to make it easy for users to develop project plans.

"We aren't aiming at the vertical, professional market," said Shwartz. "You shouldn't have to know what a PERT chart or a critical path is to manage business projects."

Symmetry will market KeyPlan and future products under a co-publishing agreement with its Australian developers, Keyway Pty Ltd. of Alexandria, New South Wales.

Symmetry is located at 761 E. University Drive, Mesa, Ariz. 85203; (602) 844-2199. □

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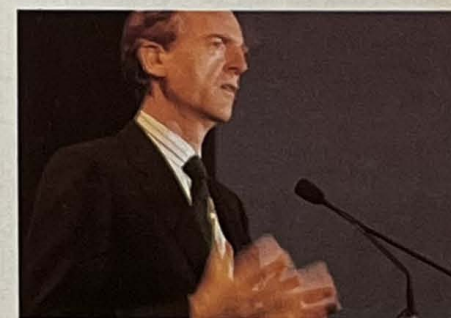


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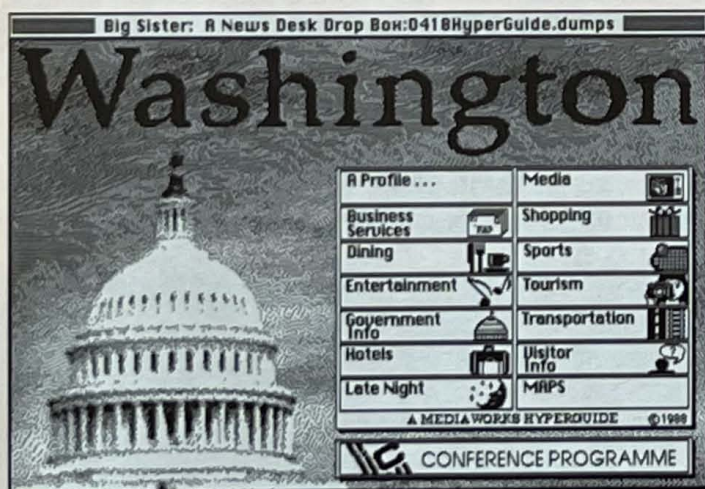
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Hyper about where to go at D.C. Macworld?

Washington — Find your hotel, pick a restaurant and learn about the original L'Enfant plan at home or in your hotel room with MediaWorks' Washington HyperGuide stack.

Maps ranging from the entire area to detailed looks at downtown Washington and its in-town neighborhoods orient a user. Click on the name of a monument or restaurant to see a card with more information and to print out a map of its surrounding location.

Twelve categories of information provide text and graphics on such topics as government agencies, business services, shopping, sports, transportation and entertainment.

The \$150 stack as well as a customized conference version are available from MediaWorks, 852 S. Stanley Ave., Los Angeles, Calif. 90036; (213) 939-5872.

MacProducts releases low-cost peripherals

By John Battelle

Austin, Texas — In a move to position itself as the "low-price leader" in Macintosh peripherals, MacProducts USA last week released a stream of low-price display and acceleration products.

The Austin, Texas-based distributor's new products, all of which are available immedi-

ately and will be shown at this week's Macworld Expo in Washington include:

► Two inexpensive eight-bit color display cards, the MagicVue 13 and MagicVue 19. The \$449 MagicVue 13 supports a resolution of 640 pixels by 480 pixels and will drive Apple's 13-inch color monitor and most 14-inch multisync monitors. The \$949 Magic-

Vue 19 offers a 1,024-by-768-pixel resolution and supports most 19-inch multisync color monitors. For \$550, users can upgrade the 13-inch board to 19-inch capability, the company said.

► The Magic View 19-inch monochrome monitor, priced at \$995, including video card, tilt-swivel base and one-year warranty.

It is available in versions for every Mac model, including the SE/30. The Magic View supports the standard 1,024-by-768-pixel resolution at 72 dpi with a refresh rate of 78 Hz.

For \$199 users can purchase an adapter card to upgrade their video card to any other Mac model.

► SmartCache, a \$99 software utility that reduces disk access time by 30 percent to 50 percent, according to the company, by storing 64 Kbytes of hard disk instructions in RAM.

► The '020 RailGun and '020 RailGun

TableTools ships with Excel link

By Richard Rowles

Palo Alto, Calif. — Filling a gap between spreadsheet and desktop publishing applications, Mansfield Systems this week will begin shipping its TableTools table-generation program. Designed for use with Microsoft Excel and a variety of graphics programs, TableTools can place tables within page-layout and word processing programs or any other application that accepts PICT files.

The \$395 program, designed for production of financial reports, manuals and scientific and scholarly publications, provides an array of WYSIWYG table-editing tools, including decimal-point alignment, style sheets, automatic re-sizing of rows and a built-in word processor with control of alignment, tabs and leading.

"Our biggest problem [in the past] has been creating tables, and suddenly it's very easy," said Barry Weiss, principal application analyst for Varityper Inc. of East Hanover, N.J.

TableTools saves tables as PICT files, which can be exported to Aldus PageMaker, QuarkXPress and Letraset's Ready,Set,Go!. It also allows users to import graphics and place them in cells.

Working under MultiFinder, TableTools' From Within Shuttle feature permits dynamic data exchange among programs so that changes made in a graphics program or Excel spreadsheet, for example, show up automatically in a table.

Sharon Kerst, a compositor and assistant Atex systems manager at Lawrence Livermore National Laboratories in Livermore, Calif., said the program's row-and-column design, style sheets and master forms make table creation much faster than using tabs.

The only drawback, Weiss said, is that kerned text in the table is not always consistent with that of the page-layout program.

Current page-layout programs do not yet support the table-editing features of Microsoft Word 4.0.

Mansfield Systems is located at 550 Hamilton Ave., Suite 150, Palo Alto, Calif. 94301; (415) 326-0603. □

Mac access to Epson printers

Torrance, Calif. — Epson America this week will announce a \$69 kit that gives Macs access to its 24-pin LQ printer series. The package includes a cable, driver and special Bitstream fonts in eight point sizes.

The driver will also support the LQ printers' resident fonts for high-speed output, graphics resolution up to 360 by 180 dpi and the advanced paper-handling capabilities of Epson's higher-end models. Along with the software, Epson's entry-level LQ-500 requires a \$59 serial interface board.

Epson is at 23530 Hawthorne Blvd., Torrance, Calif. 90505; (213) 373-9511. □

Spend seven years inside Apple and you learn a thing or two.

In 1981, Apple approached several major software developers with a radical vision of personal computing.

A vision, it turned out, too radical for most to even accept.

But one did.

To this day, over seven years later, we suspect the other developers are still kicking themselves.

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computer in history. To give Macintosh users all the functionality, flexibility and power to

push productivity to unheard-of limits. And to do it with a combination of hardware and software that's somehow embarrassingly simple to use.

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today's businesses do business.

Case in point: Microsoft® Word, quite literally the best-selling Macintosh application



Apple and Microsoft not only shared the same vision, we shared the same timetable: the day Macintosh shipped, our software shipped.



Fileserver Accelerator cards. Both cards, which are based on products from Novy Systems of Ormond Beach, Fla., support the Mac 128K through the SE. The '020 RailGun, available in a \$499 16-MHz version and an \$899 25-MHz version, can be toggled between the original 68000 processor and the 68020 on board the accelerator. Smart-Cache software is included.

The '020 RailGun Fileserver Accelerator is geared specifically toward speeding up 68000-based Macs for use as file servers. It includes a parallel-processing feature that

allows the original processor and RAM on such machines to be used as an Apple-Talk and SCSI cache. The card is available in a \$995 16-MHz version and a \$1,395 25-MHz version. A 68881 math coprocessor is available.

For optimum performance with all the RailGun cards, MacProducts suggests adding at least 1 Mbyte of RAM, which it offers as an option.

The company also announced a 40 percent discount on the '020 RailGun Fileserver Accelerator to anyone trading in a working

accelerator from Novy, Radius, Daystar Digital, Irwin or Peak.

► A software upgrade for the Novy Mac 20mx accelerator, giving it compatibility with more hard disks. The upgrade includes SmartCache.

► The low-cost Magic Tape 60, a 60-Mbyte tape drive that retails for \$695, and the Magic Tape 150, an \$895 150-Mbyte tape drive.

MacProducts USA is located at 8303 Mopac Expressway, Suite 218, Austin, Texas 78759; (512) 343-9441. □

Generation X offers B&W, color graphics boards

By Connie Guglielmo

Santa Clara, Calif. — Generation X Technologies is out to make a name for itself in the color graphics market with new, low-cost monochrome and eight-bit color boards for the Mac SE/30 and what the company cryptically calls "other direct slot systems."

► At \$995 the eight-bit Vision '030A is nearly \$1,000 less expensive than previously announced color boards for the souped-up new SE, and it is the first that can drive Apple's popular 13-inch color display.

To ship in May, the board offers a resolution of 640 by 480 pixels at 72 dpi. It supports one-, two-, four- and eight-bit color and gray levels. Hardware-based pan and zoom functions let users move quickly across a virtual desktop of up to 820 by 480 pixels.

► Publisher '030, Generation X's \$525 monochrome board for the SE/30, is the first board for the new compact model that will drive Apple's new 15-inch portrait display and 21-inch landscape monitor. It will also work with Generation X's own 19-inch, \$1,395 monochrome monitor.

The board, currently shipping, provides a resolution of up to 1,024 by 768 pixels at 72 dpi. With the Apple portrait monitor, the Publisher '030 card will provide a full-page virtual desktop and pan and zoom functions.

Generation X will also join other display vendors offering large-screen eight-bit color boards for the SE/30. Vision '030X, priced at \$1,795, offers user-definable resolutions of 640 by 480 pixels or up to 1,024 by 768 pixels at 72 dpi. It can drive most 19-inch color and gray-scale monitors, the company said, as well as the Apple 13-inch color display, among others. The board has 786 Kbytes of memory on board and offers pan and zoom across a virtual desktop measuring up to 4,096 by 1,536 pixels.

"We're the only company that's going to offer a full line of boards for the Mac SE/30, both monochrome and color," said Sreekanth Ravi, marketing manager for Generation X.

The SE/30 boards are part of a family of display boards for the Macintosh being developed by the 6-month-old company. "All our boards, whether they're for the SE/30 or the Mac II, IIx or IIcx, will work with a variety of monitors, including Apple's monitors," Ravi said.

For other Mac models Generation X's offerings include:

► Vision II, a \$1,695 eight-bit color board for the Mac II, IIx and IIcx. It contains 768 Kbytes of memory on board and offers a resolution, on a 19-inch monitor, of 1,024 by 768 pixels at 72 dpi.

► Publisher SE and Publisher II, \$499 monochrome graphics boards for the Mac SE and the Mac II, IIx and IIcx. Both offer a resolution of 1,024 by 768 pixels and drive the company's own 19-inch monitor and Apple's 15-inch and 21-inch displays.

Ravi said that the Vision '030X and the Vision II color boards include a connector for graphics acceleration hardware that the company hopes to release this summer.

Generation X Technologies is located at 3350 Scott Blvd., Building 7, Santa Clara, Calif. 95054; (408) 739-4570. □

ever created. Now, with the new version 4.0, Word users can enjoy true WYSIWYG and even easier table generation.

Microsoft Write gives the casual user a great deal of word processing capabilities—for not a great deal of money.

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Right now, eight out of every ten Macintosh spreadsheet users are using Microsoft Excel.

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MicroStation CAD ported to Mac

3-D program uses 32-bit QuickDraw

By Cliff Lehman

Philadelphia — One of the giants in the world of proprietary CAD workstations announced a Mac version of its MicroStation CAD software at the National Computer Graphics Association '89 conference here last week.

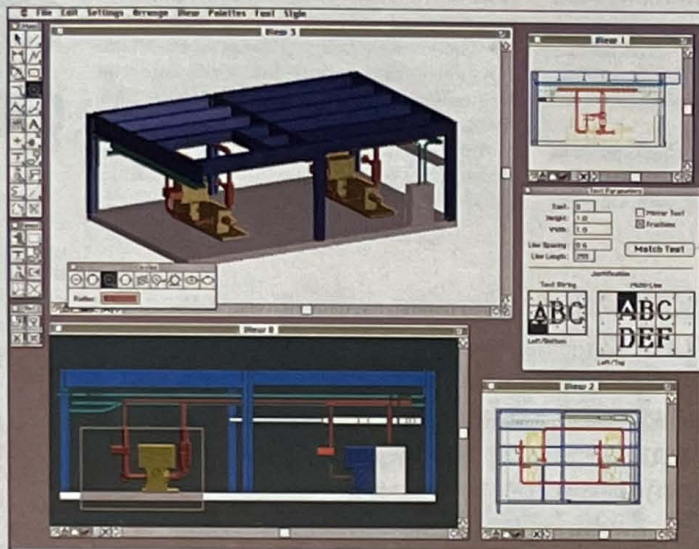
Intergraph Corp. said its MicroStation Mac 3D CAD program, carrying a list price of \$3,300, is scheduled for release in July. It will be fully compatible with Intergraph's VAX-based graphics software, the Interactive Graphics Design System (IGDS), the company said, and will have graphics database compatibility with other MicroStation versions for MS-DOS and Unix.

MicroStation Mac also boasts an interface to Oracle's relational database manager and drawing interchange format (DXF) input and output, which takes advantage of Apple's new 32-bit color QuickDraw.

MicroStation uses pop-up, pull-down and tear-off menus to give users access to more than 450 precise drawing and viewing functions. Features include integrated hidden line removal and visible surface and gouraud (smooth) shading. The program also supports up to eight active views and up to six graphics monitors.

The program also has a virtually unlimited undo function and an automatic save feature.

MicroStation Mac, developed by Bentley Systems Inc., a Lionville, Pa., developer partly owned by In-



MicroStation's pop-up, pull-down and tear-off menus give access to more than 450 precise drawing and viewing functions. The \$3,300 Mac version will use 32-bit color QuickDraw.

tergraph, requires a II line or SE/30 Macintosh with 2 Mbytes of RAM.

Intergraph announced MicroStation Mac in a joint press conference with Apple. The two companies are jointly authorizing and

training MicroStation Mac resellers and value-added resellers.

Intergraph Corp. is located at 1 Madison Industrial Park, Huntsville, Ala. 35807; (800) 345-4856 or, in Alabama, (800) 345-0218. □

Quark does an about-face on XPress upgrade policy

By Carolyn Said and Connie Guglielmo

Denver — Bowing to a flood of complaints from users, Quark Inc. has reversed its upgrade policy for the latest version of its QuarkXPress desktop publishing package.

When Quark introduced and shipped version 2.1 of the \$795 pro-

gram on March 13, it offered a "free" upgrade (not counting a \$15 postage and handling charge) to customers who purchased Version 2.0 after March 13 and to users covered by its extended warranty plan. Users whose original 90-day warranty was still in effect were offered the upgrade for the \$15 fee plus \$150 for the extended warranty.

Other customers, however, had to purchase the \$150 warranty plan and pay an additional \$125 for the upgrade, plus the shipping charge — a total of \$290.

The terms prompted what the company drily called "a number of negative comments."

"We agree that we were wrong," the company wrote in an April 12 letter to XPress owners announcing a revised policy. Version 2.1 will now be free, aside from the shipping charge, to users who purchased the previous release any time after Jan. 14, rather than March 13. Other customers who don't have extended warranty coverage can get Version 2.1 for \$125, without joining the \$150 warranty program.

For XPress owners who do not have Version 2.0 or later, Version 2.1 is now available for \$300.

Quark's extended warranty includes a year of technical support, a subscription to the Quark newsletter and "free" upgrades of new versions released during the year.

Quark Inc. is located at 300 S. Jackson, Suite 100, Denver, Colo. 80209; (303) 934-2211. □

Microtech unveils accelerator series

By Daniel Farber

New York — Microtech International Inc., a leading manufacturer of storage and memory products, introduced a series of accelerator boards for the Mac at the Macintosh Business Conference & Exposition here last week.

Microtech's new offerings include a low-cost 68020 board for the Mac Plus and SE, a 68030 board for program development and 68882 math coprocessor upgrades.

► The \$599 Microtech 68020 Accelerator gives Mac II performance to the 68000-based Plus and SE, according to the company. The 68020 board, running at 8 MHz, uses a proprietary design that improves performance without increasing the clock speed of the chip, said Bill Reed, director of sales and marketing at Microtech.

The 68020 Accelerator also provides support for the 68881 or 68882 math coprocessor running at clock speeds of up to 33 MHz. With a 16-MHz 68881 on board, the 68020 Accelerator costs \$898.

► The Microtech 68882 Accelerator, available at 25 MHz or 33 MHz, can replace the 68881 on the Mac II or the 16-MHz 68882 on the Mac IIx and IIcx. The higher-clock-speed 68882 chips can double floating-point performance for applications like CAD, ray tracing, 3-D solids modeling and spreadsheet calculations, said Reed. The 25-MHz version costs \$1,299 and the 33-MHz version costs \$1,799.

► The Microtech 68030 Design Board is aimed at software developers using the 68020-based Mac II to create software for the 68030-based Macintoshes. The 16-MHz board includes circuitry and test points for real-time software analysis.

"The \$995 cost compares favorably with the cost of purchasing a new 68030 system, even at developer discounts," Reed said.

In conjunction with the new accelerators, Microtech introduced a program called Step-Up that will allow users to economically upgrade the modular boards with memory and faster processors, according to Karen Armstrong, vice president of the company.

In addition, Microtech announced availability of the R45, a removable-cartridge hard disk with 25-millisecond access time and 42.7 Mbytes of storage per cartridge. The R45 has a two-year warranty and retails for \$1,099.

Microtech International is at 29 Business Park Drive, Branford, Conn. 06405; (203) 488-7744. □

For the Record

The price for Vano Associates' MacChuck program was incorrectly listed in last week's review. It should be \$99.95.

MacWEEK

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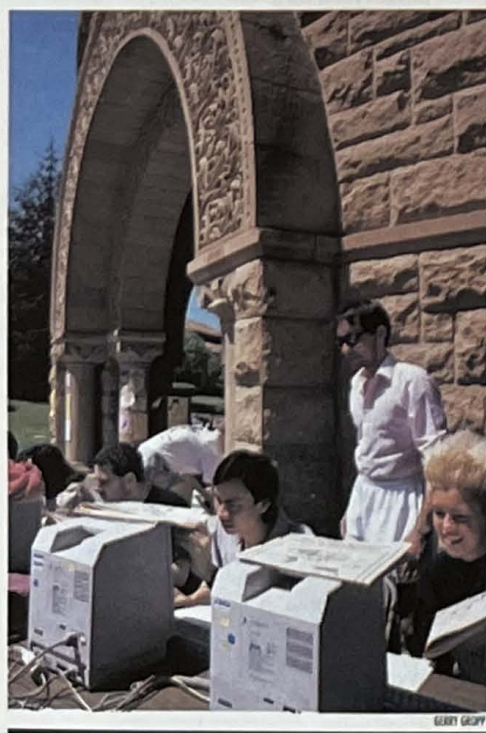
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Desktop elections at Stanford



Stanford, Calif. — Could desktop elections be Apple's next marketing buzzword? Stanford University students led the way here last week, using Macs and a HyperCard program developed by a 19-year-old election commissioner to elect student leaders and express their views on such issues as whether campus stores should stock recycled paper. Computerphobes got to use paper ballots. County and state election officials reportedly observed the experiment with interest.

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Business *Continued from Page 1*

Apple, and attracted about 18,000 attendees, said Einreinhofer. A handful of exhibitors used the venue to introduce new products (see story, below).

"This isn't as big as a Boston or San Francisco Macworld, but it is a good show. There are a lot of products here, but it is small enough that you can absorb it easily," said Donald DeGraeve, manager of technical publications for Raytheon Corp. in Lexington, Mass.

Other visitors were less impressed. "I expected to see technology that would blow our socks off," said William Buzzard, an architect for New England Environmental in Stamford, Conn. "We've seen most of this before."

Exhibitors were generally pleased with the size and quality of the crowds.

"Most of these are serious buyers — people who fit the customer profile for our high-end products," said Byron Wagner, president of Genius Inc. of Santa Monica, Calif.

The Apple Professional Exchange users and developers' group made a prominent appearance at the show with the announcement of its technical paper contest award winners and panel discussions on viruses and software piracy.

Apple's support for the show included a keynote presentation by CEO John Sculley, during which he replayed familiar Apple themes and videos from other recent appearances.

The presentation also featured a demonstration of what Sculley referred to as "desktop media," in which Apple's HyperTV technology was coupled with the ColorSpace



Mass Microsystems President Thomas Massie with the ColorSpace FX board: "Just put some video behind your presentation, add sound and before you know it, you're doing multimedia."

FX board from Mass Microsystems to produce special effects on live video output.

"People think that multimedia is too complicated, but they are already doing all this presentation stuff," said Mass Microsystems President Thomas Massie. "What we're saying is just put some video behind your presentation, add some digitized sound and before you know it, you're doing multimedia."

Massie said the ColorSpace FX board will probably ship in June or July at a price of \$2,995.

In a press conference after the presentation, Sculley said that Apple's top two priorities are "sorting out the product line" and "demand-creation marketing."

"Our CPU strategy is working and the management of new products is going extremely well," he said.

Sculley discounted speculation about competition from lower-cost

workstations, noting that Sun's SPARCstation costs twice as much as a IIcx without color and lacks a full range of general business applications.

Following on the heels of the previous week's failed MACdex in Chicago, the modest success of Mac Business sets the stage for the third leg of the Mac trade show Triple Crown. Observers expect that this week's Macworld Expo in Washington will outdraw the previous shows in exhibits and attendance.

Cambridge Marketing has canceled a previously scheduled Macintosh Business event in Chicago, but it will hold another West Coast show in Long Beach, Calif., in December and repeat the New York show here next July. □

Business show goesers sample banquet of new Mac products

The Mac took a small but tasty bite out of the Big Apple last week at the Macintosh Business Conference. Among the highlights:

► Ricoh Corp. Peripheral Products Division of San Jose, Calif., demonstrated a six-bit, 64-gray-scale scanner and announced that it will be available in mid-June under the Ricoh name as the RS 322. The scanner, to be priced at \$1,450, is now being sold as an OEM product under the name IS11. Ricoh also demonstrated a 24-bit, 400-dpi color scanner called the FS-1 that will be priced at about \$7,000. A ship date has not been decided.

► E-Machines Inc. of Beaverton, Ore., introduced the T19 SE/30, a color two-page display system for the Mac SE/30. The \$6,195 system includes an eight-bit color graphics board with 1 Mbyte of dedicated video memory and a 19-inch Sony Trinitron monitor offering a resolution of 1,024 by 808 pixels at 75 dpi. The system will ship in August.

► Connect Inc. announced the

founding of Connect GmbH in West Germany to extend the Connect network system to Europe. Connect will provide users in Europe with the ability to communicate on-line through a single system. The move is billed as a major step in eliminating borders in the European community. Connect also announced with CE Software a bridge between CE's QuickMail system and Connect. The bridge allows QuickMail users to access E-mail and stock market information from Connect automatically.

Ricoh Corp. Peripheral Products Division is located at 3001 Orchard Parkway, San Jose, Calif. 95134; (408) 432-8800.

E-Machines Inc. is located at 9305 S.W. Gemini Drive, Beaverton, Ore. 97005; (503) 646-6699.

Connect Inc. is located at 10101 Bubb Road, Cupertino, Calif. 95014; (408) 973-0110.

CE Software Inc. is located at 1854 Fuller Road, West Des Moines, Iowa 50265; (515) 224-1995. — *By Connie Guglielmo and Cliff Lehman*

Finder *Continued from Page 1*

The prototype Finder includes an organizing capability called "aliasing." An alias is an icon that transparently references another file or folder. When opened, this icon finds and opens the original file or folder, mounting network servers automatically if necessary.

A significant new mail capability is expected to be part of the System 7.0 suite of operating system modules. In the prototype Finder, a mailbox sits on the desktop for receiving and posting mail. Letters can be created and sent directly from the Finder. Reply, forward and annotate commands are provided, in addition to an address book and user-definable groups.

The functions now filled by the Control Panel, Chooser and Font/DA Mover utilities will be more tightly integrated into the Finder. Desk accessories and sounds will be installed in the System file or stored on the desktop as objects with their own icons. Double-clicking on their icons either launches them or gives a sample of their contents.

To use the fonts or sounds, users need only drag the icons into the System folder. DAs and applications are added to the Apple menu simply by placing their icons in a new Apple folder.

A new folder on the desktop contains the icons for net-

Europe *Continued from Page 1*

work file formats" from MS-DOS and OS/2 applications.

► News that Claris will give all of its applications a unified interface and a single macro language. Using the interprocess communications capabilities (IPC) expected from Apple "as they become available," the macro language will let users turn Claris products into "an application system" that works better than any equivalent but unrelated competing programs, Dalal said.

Claris has not yet decided whether its macro language will be based on HyperTalk, he said.

► A promise that all Claris applications, including MacWrite II, will be made "multi-user and network-aware."

In the area of database management, which he called "the most important category for the 1990s," Dalal said that Claris does not plan to develop its own high-end database but will instead "embrace the client-server model." The company, he said, will support not only CL/I, the SQL database connectivity language from Apple subsidiary Network Innovations, but also DB-Lib, another SQL link being developed by Sybase of Emeryville, Calif., with support from Ashton-Tate and Microsoft.

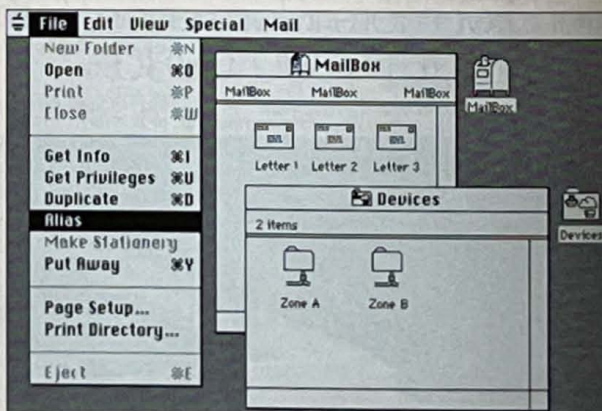
Claris, he said, will concentrate on providing front-end tools, enhancing FileMaker's browsing and reporting capabilities and SmartForms for transaction processing.

Among the company's short-term goals, he said, is changing MacDraw II to include bit-mapped graphics and extending MacWrite II to support large documents. He also indicated that the company intends to give MacWrite II a capability called "incorporation by reference" that would permit users to create live links between different text documents.

Format Software GmbH, the Dormagen, West Germany-based developer of the HyperCard-like Plus program, said that shipments in quantity will begin next week.

In addition to its color and large-screen capabilities, Plus offers irregularly shaped buttons and better support for true hypertext, with words as buttons and multiple fonts per field. At least initially, the program will be sold to U.S. customers directly from West Germany at an introductory price of \$195, with support available through CompuServe and AppleLink.

Ragtime 3, a much-enhanced version of a spreadsheet and integrated office package favored by large accounts in Europe, will be delivered in the third quarter, according to publisher MacVank of Zeist, the Netherlands. Major additions include a full data graphing section with links to the spreadsheet, 90-degree rotation of spreadsheet text for labels, dynamic links between separate spreadsheet documents and direct control of background and foreground colors in any cell. □



As shown in this early prototype, the new Finder will include Unix-like capabilities, including aliases, "transparent references to files and folders anywhere on a disk or a network."

work services like printers and file servers. This replacement for the Chooser lets users browse through the network by opening "network folders" representing zones to see the available devices. AppleShare servers will be opened simply by double-clicking and logging in.

An extension mechanism is also planned that will allow Apple to add or remove certain features of the Finder. Capabilities such as electronic mail, backup services and an icon editor could be seamlessly integrated into the Finder via extensions. The extension mechanism may become available to outside developers.

Other features expected to be incorporated in the new Finder include:

- An integrated Help system.
- Find and Find Next com-

mands that can search up to 10 times faster than the Find File desk accessory and can automatically open a folder and select the found file.

► Support for styled and colored text in the Clipboard.

► A Sleep command that blanks the screen and cuts power consumption in portable Macs.

► Better window control through horizontal scroll bars and group selection in all views, zoom sizes constrained by contents and automatic scrolling.

► An icon editor accessible by double-clicking an icon in a Get Info window.

► An expanded MacroMaker for recording and playing back commands from applications. However, current applications will have to be modified to take advantage of it. □

NCGA *Continued from Page 1*

also promises to improve the quality of black-and-white output on LaserWriter printers.

The new version of QuickDraw extends the Mac's color capabilities from eight-bit mode, which limits on-screen display to 256 colors, to a 16- or 32-bit mode, said Laurie Girand, system software product manager for graphics at Apple.

The 32-bit mode supports 24-bit color, or the display of up to 16.7 millions colors on-screen simultaneously. An additional eight bits of information can be used by applications developers for advanced graphics manipulation, such as transparency effects. Apple is currently developing guidelines on how the additional eight bits of information can be used by developers, Girand said.

More than 15 Macintosh developers were on hand to announce immediate support for the new color standard, including Visual Information Inc., Tektronix Inc., ModaCAD Inc. and Intergraph Corp. (see related story, Page 6).

"Having 24-bit color gives us a whole new market we can leverage the Mac into," said Steve Edelman, chief scientist at SuperMac Technology of Sunnyvale, Calif.

"Thirty-two-bit QuickDraw will be the standard required within the

next 12 months," predicted Robert Sherwood, vice president of marketing at RasterOps Corp. of Santa Clara, Calif.

SuperMac announced it is now shipping its \$3,999 Spectrum/24 graphics card, which supports Apple's 12-inch gray-scale monitor and 13-inch color monitor as well as SuperMac 16- and 19-inch color and gray-scale monitors.

RasterOps said it is shipping two boards supporting 32-bit Color QuickDraw: the \$2,995 ColorBoard 232 for the Apple 13-inch color monitor and the \$5,195 ColorBoard 224, which operates at various resolutions, including 640 by 480 pixels on the Apple 13-inch color monitor, 800 by 600 pixels on a 16-inch monitor and 1,024 by 768 pixels on a 19-inch monitor.

The new QuickDraw is currently available to third-party developers and will be distributed free via Apple's dealer and sales network to Mac owners interested in upgrading their system starting in May, Girand said.

She added that QuickDraw will be included in the next major release of the Macintosh operating system, System 7.0, as well as in the ROMs of all 68020 and 68030-based Macs. It will run on any Mac SE/30, II, IIX and IIfx with a recommended 2 Mbytes of RAM. □

Omnis *Continued from Page 1*

in PICT format can be integrated into database files and reports.

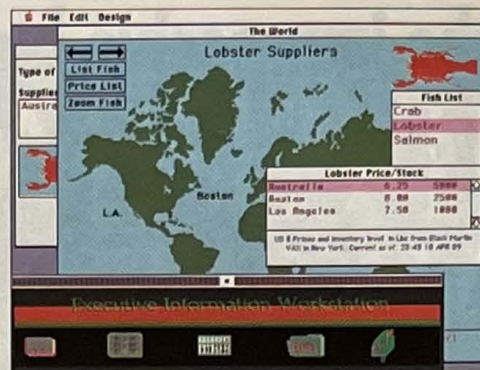
► **Mac interface support.** The new release allows users and/or developers to define radio buttons, check boxes, windows, menus and other Mac interface features.

► **HyperCard access.** Omnis 5 includes external commands (XCMDs) that allow HyperCard to read "live" Omnis data files.

► **CL/I support.** Omnis 5 supports Apple's yet-to-be-announced CL/I SQL database access protocol and can be programmed to access any SQL database, according to Steve Weller, technical marketing manager for Blyth.

► **Omnis Express.** A new version of the Omnis Express application-building utility included with Omnis 5 constructs an application on the basis of an outline created by the user.

► **IBM compatibility.** Omnis Quartz, Blyth's offering for Windows on IBM PCs and compatibles, will be upgraded to Omnis 5 by the third quarter, the company said. The program will have versions that run under both Windows for MS-DOS and OS/2 Presentation Manager and will be compatible with all Omnis 5 Macintosh files, Weller said. Developers who create an Omnis 5 appli-



Omnis 5, which will ship in early May, includes support for color graphics, multiple open windows and the full Mac interface. Files will be compatible with Blyth's Windows and OS/2 products.

cation on the Mac will be able to port their applications to Windows or OS/2 with no further coding, he said.

One such developer is Georges Pelpel, president of Logisoft Inc. of Foster City, Calif. Logisoft created the Multiuser Desktop Accounting package based on Omnis Version 3.3. The company is now completing an upgrade to the accounting package based on Omnis 5 and is working on other Omnis-based vertical applications. "Originally we weren't going to [port to the IBM environment]," Pelpel said. "But now there is no additional work needed, so we are going to port when the Windows

and OS/2 versions of Omnis are ready."

Omnis 3.3 applications are "mostly" compatible with Omnis 5, Weller said. Omnis 5 will annotate Omnis 3.3 code, embedding comments in the code where adjustments need to be made, he said.

"From what I have seen, it looks like they have filled a number of

the gaps that caused Omnis 3 to lose market share," said David Beaver, president of The Automation Group, a San Francisco-based consulting and database development company.

"In terms of speed and features, 4th Dimension (from ACIUS of Cupertino, Calif.), FoxBASE+/Mac (from Fox Software of Perrysburg, Ohio) and Omnis 5 all seem to be converging around the same point."

Blyth plans a formal unveiling for Omnis 5 at the Macworld Expo in Washington, this week.

Blyth Software is at 2929 Campus Drive, Suite 425, San Mateo, Calif. 94403; (415) 571-0222. □

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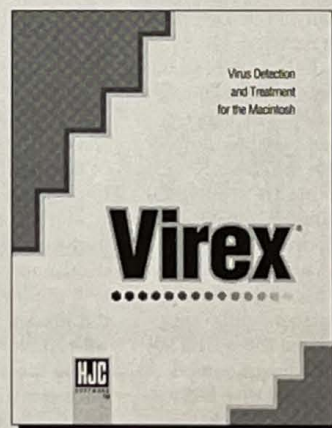
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NeXT cube impressive but immature

Computer still a developers' tool

By Don Crabb

Where does the NeXT Computer System stand six months after its introduction?

Notwithstanding the recent distribution agreement that will have Businessland marketing the black cube to business users, the NeXT Computer System remains unmistakably a developers' machine. It still comes with a beta operating system and an application developer's tool kit. Some of the promised end-user software is also in beta form, too, and some applications are still missing.

The hardware is close to a release version, but it still has two problems: The optical disk is noticeably slow, and the thin Ethernet interface built into the cube makes it incompatible with the widely used thick Ethernet system.

The first problem is surmountable, since NeXT also sells some

fast 330- and 660-Mbyte hard disks. The second problem can also be solved with third-party products, including a board recently announced by Kinetics. As of now, though, the NeXT Ethernet connectors are physically incompatible with Ethernet cable drops, which means its utility is dramatically reduced.

Release 0.9 of its package of system software, utilities and applications was shipped earlier this month to the more than 1,000 NeXT machine owners. The software still has a way to go before Release 1.0, which NeXT officials said will be introduced in June, but this version brings several major enhancements.

In Release 0.8, the application developer's toolkit did not include an Objective C compiler, substituting a slow pre-compiler instead. The 0.9 software fixes this problem with a completed Objective C compiler. Since the

development environment is built on Objective C, this step is very important.

Similarly, Interface Builder, the primary object-oriented tool set for developers creating NeXT applications, has been significantly improved. It was useful in Release 0.8, but its own interface had a lot of quirks. The 0.9 version has a streamlined interface and supports a new native file format that fits better with the Mach/Unix operating system. In addition, custom objects can be linked to Interface Builder and appear in an object palette.



Release 0.9 of NeXT software includes a Preferences application, like the Mac Control Panel, where a user can adjust the interface.

A major problem addressed by the 0.9 NeXT software is interface configurability. In Release 0.8 you had to edit tricky Unix files to reset something as simple as the built-in clock. Release 0.9 fixes this kind of problem by including a Preferences application.

That program also lets you set applications for auto launch when you start up or log into the system. Like the Mac Control Panel, the 0.9 Preferences can set key repeat rates, mouse scaling, button usage, date and time, and other basic properties of the user interface.

Standard panels for printing, font selection, opening files and other common functions, similar to dialog boxes on the Mac, have been added to the application kit. Developers can use the pre-defined panels in their applications.

Release 0.9 also includes a version of NetInfo, a system administration environment for configuring and managing networks. And WriteNow, the word processor bundled with the cube, has several new features, including mail merge and support for EPS (Encapsulated PostScript) format and RTF, Microsoft's "rich text" exchange format.

In addition, third-party printers, including Apple's LaserWriter, are now supported, and sound, music and digital signal processing support are fully implemented.



Standard panels for common functions, similar to Mac dialog boxes, are now available.

NeXT's standard directories for applications and resources, such as sounds, have been reorganized and you can choose to view the full Unix file structure or NeXT directories.

Release 0.8 was sluggish, especially if run from the optical disk. When files (including the Mach operating system) were moved to the 660-Mbyte SCSI disk, per-

See NeXT, Page 20

MacInTouch RICK LEPAGE AND RIC FORD

Quantum leaps and disk decisions

ISSUES & TRENDS

Quantum Corp. of Milpitas, Calif., is a major supplier of hard drives to many disk vendors in the Macintosh market, including Apple. The first Quantum drive we encountered was the half-height 5.25-inch Q200 series used by Jasmine Technologies Inc. in its Direct Drive 80 and by Apple in the Mac II.

Quantum was one of the first manufacturers to combine an embedded SCSI controller with its drive, and the Q200 uses a special cache (the "DisCache") in its controller to significantly speed up many operations. We've seen no complaints about the reliability of the Q200 series, and its performance has compared well with other Macintosh hard disks, although a few are faster.

Last spring, Quantum introduced a new series of 3.5-inch hard disks, the ProDrives, that boasted performance specifications almost two times better than those of the Q200s in a package half their size. Average access times were cut from about 30 milliseconds to less than 19 milliseconds; the data transfer rate doubled and the MTBF (mean time between failures) doubled to 50,000 power-on hours, promising

excellent reliability. (The DisCache feature was also retained.)

Apple responded last fall by contracting with Quantum for large numbers of the drives at a special price. Many third-party vendors are also using the ProDrive, although their costs are often higher than Apple's (and higher than the cost of other drives).

We have been working with a group of these disks recently, and it is surprising how many differences and issues arise even though all are based on the same major component, a Quantum ProDrive 80S. The disks we've seen include the FWB PocketHammer80, Microtech Nova 80, Ruby Systems' StarDrive 80DX and Apple's Internal 80SC for the Mac SE.

Performance boost. Our subjective impressions match the impressive performance specs — the disks feel fast.

Part of the perceived speed is due to the special cache. We saw data transfer rates for small chunks of data that were extremely high. Overall performance lags a little behind our speed champion, the CDC Wren drive used in hard disks like FWB's Hammer300, but there aren't many disks that can keep pace with the new Quantums.

With one exception, disks from the different vendors performed similarly, with variations caused by differences in installer software. The DisCache can be used in many ways, so it is up to the programmer of the installer software to choose the best set of trade-offs.

The surprise was an outstanding performance turned in by Apple's disk in our standard benchmark test, duplicating a large file from the Finder. In this test, formatting with Apple's software cut the duplication time by 25 percent over third-party installer software to match the speed of our CDC Wren. Other tests failed to show the same gains for the Apple software, so it appears that Apple has optimized its disk driver for the Finder without affecting performance elsewhere.

Installer software. Installer software often determines the difference between a good hard drive and a weak one. Apple's own HD SC Setup utility has undergone many changes in the past year, while third-party manufacturers continue to offer a wildly varied range of features and approaches.

Good disk software is not as common as one might hope. We've too often seen utilities where you

cannot test your disk or update its driver software without reformatting the disk, thereby destroying all its data.

Apple's HD SC Setup 2.0, FWB's PocketInstall, Ruby Systems' StarDisk and Microtech's Format have the essentials right, although they differ in friendliness and partitioning capabilities. Each can test to find media problems without destroying data, update to rewrite the disk driver without destroying data and format to set the crucial interleave factor and re-map bad blocks.

Apple and Microtech calculate the interleave factor automatically, creating performance problems if you format a disk on a high-end Mac (SE/30 or II family) and move it to one of the older 68000-based Macs. FWB and Ruby also select an interleave automatically, but they give you a way to override it.

Extras. Upon powering up these drives, it's immediately clear that the Quantum is quieter than the average Macintosh disk. The small size of the ProDrive also makes it possible to create the kind of highly portable package designed by FWB for the PocketHammer. Even with a full complement of SCSI connectors, status lights

and fan, the PocketHammer is tiny, like a miniature version of the SuperMac DataFrame drives it resembles.

The new Quantums also provide a few welcome extra megabytes. The ProDrive 80S formats on the Mac to more than 80 Mbytes of free space, which amounts to 3 Mbytes more room than the older Q200 drives offered.

While manufacturing disk drives is a tricky business and finding good software for them is difficult, the current spate of Quantum ProDrive products for the Mac seems a boost in the state of the art. Within the parameters set by the major component — the integrated disk and controller — there are many issues and decisions for buyers, with some attractive options available. We'll be delving into some of the issues in more detail in future columns and looking for top drives from other companies.

We welcome comments at MacWEEK, 4 Cambridge Center, Third Floor, Cambridge, Mass. 02142; (617) 497-2600. Electronic mail: CompuServe: (Ric Ford) 75056.1225, (Rick LePage) 75016.350; Delphi/PAN: MACWEEKBOS; MCI Mail: RICKFORD, RLEPAGE, MACWEEKBOSTON; AppleLink (address "MacInTouch" in Subject): MACWEEK; MacNET: RICKFORD, RICKLEPAGE; Genie: MACWEEKBOS, Internet: RICKFORD@CUP.PORTAL.COM.

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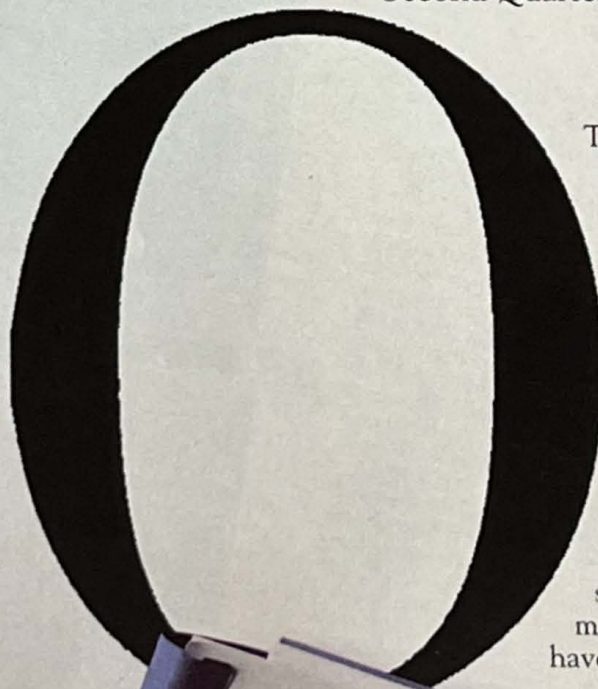
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The Second Quarter of 1990 saw Articulate Designs strengthening its position as the leader in marketing communications in the Bay Area. The most significant event was the completion of negotiations with the Oakland Rebels,^[1] a new football franchise, that will have Articulate Designs create the complete team image for the club—logo, uniforms, tickets, and marketing materials. The \$5 million deal calls for consulting and design work into the mid-1990's.

The company posted profits of \$.15 per share this quarter, on \$244,568 of revenue, marking the third quarter in a row that profits have increased. The acquisition of PeachTree Printing in the Fourth Quarter of 1989 began to pay dividends, as the in-house production facility cut printing costs in half.

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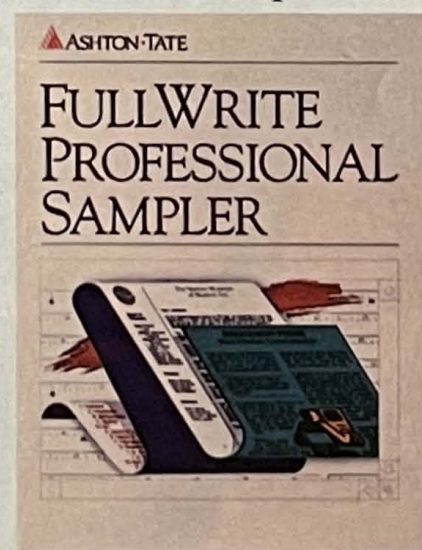
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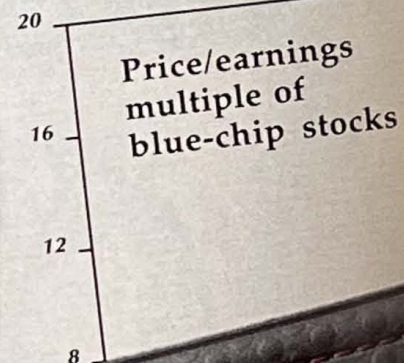
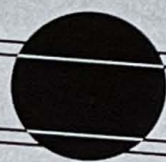
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WITH THE NUMBERS TO

Economic Review

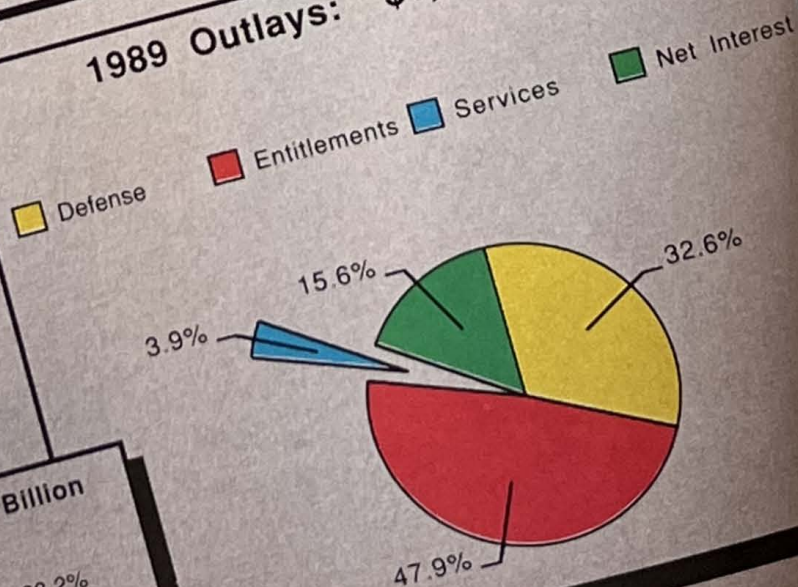
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Summary of Results

Close-Up on Government Spending

1989 Outlays: \$1,023 Billion



Entitlements have become increasingly burdensome as a percentage of total government outlays. As a result, funds for social services have been reduced.

1985 Outlays: \$946 Billion



Finance

Annual Deficit	Addenda GNP
-2.8	990.5
-23.1	1057.1
-23.4	1151.2
-14.9	1285.5
-6.2	1417.0
-53.2	1523.5
73.7	1699.6
	1935.8

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Chart scheduling gets on FastTrack

AEC ships first complete release

By Henry Norr

Germantown, Md. — AEC Management Systems Inc. last week began shipping FastTrack Schedule 1.02, the first official and complete release of its new Gantt chart scheduling program.

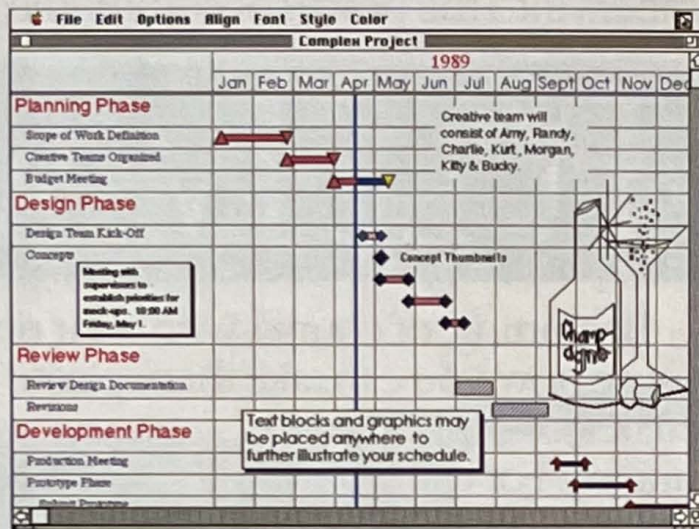
The \$195 program is designed for managers who need to make quick and easy schedules and don't want to get involved with complex project management or graphics programs, the company said.

The product was originally unveiled at January's Macworld Expo in San Francisco, and AEC has been selling it since then, but the new release is the first with all features implemented, a company representative said.

"Everyone I have shown it to here has asked me to order a copy," said Mark Goldenberg, a systems support engineer at Hughes Aircraft's Ground Systems Group in Buena Park, Calif. "We already have 30 copies, and I just cut an order for another dozen."

FastTrack Schedule lets users create and update Gantt charts by drawing bars directly on a chart marked off in units ranging from hours to years. An underlying database engine stores the information depicted in the chart.

In addition to standard start- and end-point symbols, the program lets users build their own libraries



AEC Management Systems' FastTrack Schedule promises quick and easy Gantt charts to which graphics, notes and custom symbols can be added. Users can draw bars directly on the charts.

of custom polygon symbols or pasted-in graphics. The program supports color display and output, and users can add background graphics, text labels and borders.

Goldenberg said that many of the users he supports also use full-blown project-management programs like Claris' MacProject II and are enthusiastic about last month's Version 2.0 upgrade to it, but they find the new AEC software extremely convenient when simple charting is all that is needed.

In addition, since FastTrack Schedule can output or import data in tab-delimited ASCII text format, it can be used as a front end to databases, spreadsheets or higher-

end project-management programs. It also imports and exports PICT-format files.

FastTrack Schedule allows up to 10 separate schedules to be open simultaneously, and users can cut and paste activities among them. Each schedule can have an unlimited number of subprojects, which are displayed outline style as indented entries under the parent project. When subprojects at any level are collapsed, the schedule information is automatically summarized and displayed in the bar of the parent project.

AEC Management Systems is at 20524 Amethyst Lane, Germantown, Md. 20874; (301) 428-3694.

HyperCard windows bloom with color

Tulip XCMDs add color PICT images

By Pamela Pliffner

Andover, Mass. — Even before the next generation of HyperCard-based software emerges, developers can extend and brighten HyperCard's small black-and-white world with Tulip Software's HyperWindows. A \$59 set of external commands (XCMDs), the product lets HyperCard programmers add up to 16 simultaneously open windows

displaying color or monochrome PICT-format images to their stacks.

HyperWindows, which was recently upgraded to Version 1.1, now supports a variety of window types including:

- Borderless windows, which can be used to add color to a picture on a card or to overlay a button, creating the illusion of a colored button. Since borderless windows are transparent to the mouse, buttons on the underlying card respond normally to clicks. A variant form, called Locator windows in HyperWindows terminology, does not

pass along mouse clicks and can be dragged by the user.

- Standard re-sizable, scrolling windows. Such windows appear in a location determined by a HyperTalk script, but users can move them to a new location by simply clicking on the title bar and dragging.

- Several varieties of box windows, offering drop shadows, single- or double-line borders, or rounded corners. These windows appear at a location determined by the script of the underlying card.

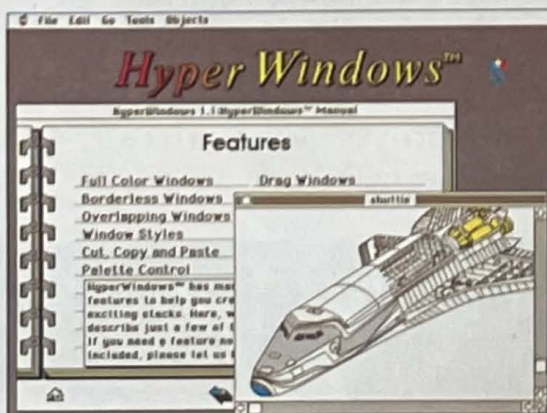
Windows can be positioned anywhere on any Mac II display and can overlap in any way, according to Ed Anson, Tulip Software president and developer of the program.

"HyperWindows allows developers to use the real estate of the big screen," said Anson.

Windows remain open in front of the card, and HyperCard remains active as long as the stack is open. HyperWindows is compatible with 32-bit QuickDraw, Anson said.

Registered owners of HyperWindows 1.0 will receive a free upgrade to the current version.

Tulip Software can be reached at P.O. Box 3046, Andover, Mass. 01810; (508) 475-8711.



Tulip Software's HyperWindows set of external commands supports a variety of window types in HyperCard, including full color, borderless, overlapping and movable windows.

News

BRIEFS



Automatrix to sell image-analysis software separately

Billerica, Mass. — Automatrix Inc. has unbundled its image-analysis software from the hardware it markets for scientific and industrial environments.

The Image Analyst program, which requires a Mac II with 4 Mbytes of RAM, extracts quantitative data from images generated by live video sources or PICT or TIFF (tag image file format) files taken from slides, microscopes, ultrasound, CAT scans or X-rays. It can be used, for instance, for computing the number and size of cells viewed under a microscope or for measuring distances in radiographs.

The software will now be available for \$2,000. It can also be purchased from Automatrix with a frame grabber and/or a camera. Depending on configuration, the system will cost between \$5,000 and \$6,200, not including the Mac.

Automatrix's AV 90 package, at a total cost of \$23,000, includes a Mac II, frame grabber, parallel I/O port, Image Analyst and Automatrix's MacRAIL image-processing and robotics programming language.

According to Gary Wagner, director of marketing, Image Analyst includes such features as live edge

and blob detection; user-defined thresholds for contrast, size or density; and automatic quantitative calculation, which Wagner called the program's strongest feature.

Automatrix Inc. is located at 755 Middlesex Turnpike, Billerica, Mass. 01821; (508) 667-7900.

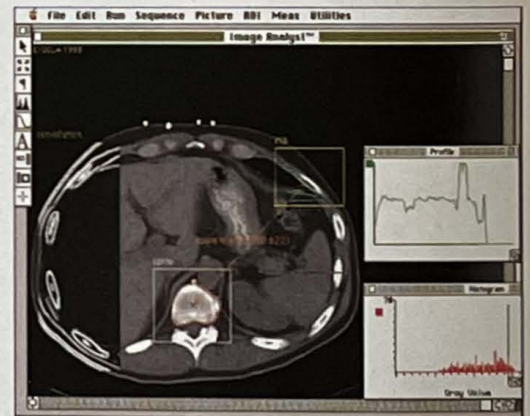


Image Analyst extracts quantitative data from images generated from live video sources or files stored in TIFF or PICT format, such as this picture of the brain. It allows scientists and medical imagers to apply image-processing algorithms to video frames without having to do complex programming.

Imprimis introduces SCSI version of hard drive

Chicago — Imprimis Technology, the Control Data Corp. subsidiary that currently dominates the large-capacity hard drive market for the Mac, introduced a SCSI version of its 380-Mbyte Wren VI half-height drive and a new half-height 125-Mbyte Wren V at Comdex '89 here earlier this month.

The 5.25-inch Wren VI drive, boasting an average seek time of 15 milliseconds, a data transfer rate of 15 Mbytes per second and a formatted capacity of 338 Mbytes, will be available in August at an OEM price of \$1,495. Versions with interfaces to IBM microcomputers were introduced last year.

The new drive is Imprimis' second in the 380-Mbyte range. The 385-Mbyte Wren Runner, also priced at \$1,495 on an OEM basis, is a full-height drive with an average seek time of 10.7 seconds.

The new 125-Mbyte drive, also a 5.25-inch mechanism, will have a storage capacity of 110 Mbytes when formatted for the Mac. It has a seek time of 18 milliseconds and a data transfer rate of between 1 and 2 Mbytes per second. The drive, a depopulated version of Imprimis' 209-Mbyte Wren V model, is available immediately at an OEM price of \$740.

Imprimis Technology Inc. is located at 8100 34th Ave. S., Minneapolis, Minn. 55440-4700; (612) 936-6271.

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Dan Shafer,
Author of Hypertalk Programming

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DBMS MAGAZINE, January 1989

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Jean-Louis Gasse, President
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MAC WEEK

- ¹ Reported by DATAMATION, 8/15/88.
² DATAPRO survey for database companies with sales greater than \$10 million, 8/88.
³ Stand alone version licensed for developers only. Requires Macintosh SE or II with 2 Megabytes of RAM, 5 Megabytes hard disk space, floppy disk drive, and HyperCard 1.2. Includes 30-day installation support, ORACLE database, Hyper*SQL (HyperCard Interface), SQL*Plus, OCI and Pro*C (Macintosh Programmer's Workshop is required for programming usage), System Stacks and Example Stacks. \$299 after 5/31/89.
⁴ Full networking version is \$999 and includes SQL*Net (for database communications), Async, DECnet, TCP/IP support, Alisa System's TSSnet DECnet protocol and drivers and Kinetic's TCP/IP protocol and driver. Accessing database software on other machines requires a separate protocol handler and gateway software for the other machine. Call for additional information.

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Ehman slashes hard drive prices

By Pamela Pliffner

Evanston, Wyo. — Ehman Engineering Inc., already known as a low-price pioneer among Mac storage vendors, last week announced further price cuts on its entire line of hard drives. The company also introduced three new internal drives as well as a removable-cartridge hard drive.

Prices for the drives, which are based on

Seagate mechanisms, now begin at \$329 for an internal 20-Mbyte drive and \$399 for an external 20-Mbyte model. The 32-Mbyte external drive has been reduced by \$20 to \$479, the 45-Mbyte model by \$70 to \$529, the 60-Mbyte model by \$70 to \$579 and the 80-Mbyte model by \$70 to \$679.

Ehman cut prices on its 32- and 45-Mbyte internal models to \$379 and \$449, respectively.

Ehman also introduced three internal drives with 20-Mbyte, 60-Mbyte and 80-Mbyte capacities. They are priced at \$329, \$499 and \$599, respectively. The new 44-Mbyte removable hard disk cartridge will sell for \$999.

Each drive comes with a two-year warranty and a 30-day money back guarantee. Effective May 1, all drives with 32 or more Mbytes come bundled with Central Point Software's PC Tools for the Mac.

Ehman Engineering is located at 97 S. Red Willow Road, Evanston, Wyo. 82930; (307) 789-3830; (800) 257-1666. □

NeXT

Continued from Page 10

ceived performance improved. Release 0.9 is a bit faster, but NeXT warns that it's still not tuned for optimal performance, so the system's true speed won't be known until Release 1.0 arrives.

The most annoying performance problem of the system software is its slowness in launching applications. Like the previous release, 0.9 was perceptibly slower at program launch, whether a custom application or a standard program, than a Mac or a Sun 3/50 running X Window Version 11, even though the Sun used had only 4 Mbytes of RAM (compared with 8 Mbytes on the NeXT), no local hard disk (the Sun uses storage on a remote Ethernet NFS file server) and a 68020 CPU that was considerably slower than NeXT's 25-MHz 68030.

Release 1.0 must improve this program startup lag if the NeXT workstation is to compete with Unix workstations.

Release 0.8 didn't hide as much of the Mach operating system as it should have. For example, to mount, unmount or eject an optical disk under Release 0.8, you had to know a lot about Unix, since you had to create a hard disk directory, open a Mach shell, log in as a "superuser" within that shell, create a mount point and then use the Unix "mount" command to actually mount the disk, while using the "unmount" and "disk" commands to unmount and eject a disk.

That's all been simplified with Release 0.9. Now, any optical disk is automatically mounted when you insert it, with its contents appearing in a new entry in your home directory. The process for unmounting and ejecting a disk was also simplified. When you log out from a NeXT machine, your optical disk is ejected automatically.

If Release 1.0 continues to "de-Unix-ify" the operating system by making it directly accessible to non-Unix experts while also improving the overall performance, the NeXT machine will be an attractive alternative in environments that need Unix compatibility.

For now, though, Apple doesn't have much to worry about from the NeXT machine, despite its obvious attraction in Unix environments. Although it will come with an impressive set of bundled applications, the NeXT workstation won't have the quantity and breadth of applications currently available on the Mac for some time to come.

Another problem to consider with the NeXT machine is its shakedown period. When the Mac was first released it suffered from both small problems and big design flaws, including its low-capacity 400-Kbyte floppy drive and a minuscule 128-Kbyte memory.

Third-party vendors are likely to address hardware deficiencies that NeXT doesn't handle. The lack of an IBM- or Mac-standard floppy drive, for example, concerns many users. Dayna, developer of the popular DaynaFile PC-format floppy drive for the Mac, plans to develop a NeXT version that will read and write both IBM- and Mac-format disks.

Overall, the NeXT software and NeXT Inc. itself are impressive. The NeXT Computer System offers features, including true multitasking with multiple user support, that no Mac can come close to, not even a Mac running A/UX. The NeXT Application Kit and Interface Builder are joys to work with, even in their beta form. The same still can't be said for Apple's Macintosh Programmers' Workshop and its object-oriented tool kit, MacApp.

NeXT has been forthright and honest with its early university adopters and developers. It's also a good sign to see the company signing on with Businessland for commercial sales. This helps ensure that the NeXT workstation won't remain just an academic oddity. □

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APX session focuses on 'safe computing'

By Daniel Farber

New York — Application vendors should start embedding virus detection modules in their software, and Apple should implement virus prevention in its hardware.

Those were among the themes discussed during a seminar on viruses here last week at the Macintosh Business Conference.

Sponsored by the Apple Professional Exchange (APX), the session focused mainly on strategies for "safe computing." Developers of virus detection and prevention software as well as corporate users stressed the need for backing up files and setting up procedures for maintaining a virus-free office environment.

For MIS directors who have many users on a wide-area network, prevention is the main issue.

"You need to watch out for changes in the pattern of system activities," said Sandro Cuccia, systems analyst for Du Pont in Wilmington, Del.

Bruce Tizes, the president of Keva Systems in Lakewood, Colo., said he believes that Apple could eliminate viruses from the Macintosh with a change in the Mac ROM on 68030 machines.

"Apple is falling down on the job," said Tizes. "Most viruses appear in the resource fork of applications. With the Paged Memory Management Unit (PMMU) on the 68030 and a utility that password-protects and places applications in a restricted area of a hard disk, Apple could prevent virus invasions."

Progress to port its multiplatform database to A/UX

By John Battelle

Bedford, Mass. — Progress Software Corp. of Bedford, Mass. earlier this month announced that it has ported its Progress multiplatform relational database management system to the Macintosh A/UX operating environment.

Progress' Macintosh implementation will share files and applications developed using the fourth-generation language that is built into versions of its database software for Unix, Xenix, MS-DOS, VAX/VMS, AIX (IBM's Unix) and other computing platforms, according to John Ricciardone, manager of public relations for the company.

Progress for the Macintosh is shipping now with an \$1,600 price tag. Runtime versions are priced at \$400, and a Query-Report version is available for \$1,050. Progress also offers Progress FastTrack, a \$600 front-end interface for application building that allows developers to include more intuitive front-end tools in their Progress applications, according to Ricciardone.

Frank Serrao, a senior programmer analyst at Planning Research Corp. of McLean, Va., said he is using Progress on a network of Mac II workstations that replaced the company's IBM PC compatible-based Progress database system.

Progress Software Corp. is located at 5 Oak Park, Bedford, Mass. 01730; (617) 275-4500. □

Hardware-based virus protection is common in the mini and mainframe computing worlds, said Bill Rees, vice president of 1stAid Software in Boston.

Some applications developers plan to protect users from infection by embedding virus-detection code in their programs.

"I hope it becomes a trend," said David

Schargel, president of Aladdin Systems of New York. "It's the first line of defense vendors should be taking to protect users from viruses."

Schargel said that programs should be able to check for unusual code segments or Startup documents (INITs) and give cautionary messages to users if anomalies are

detected. Schargel said Aladdin Systems plans to implement such a strategy in his company's upcoming data compression product, StuffIt Deluxe.

While virus-prevention and eradication software is critically important, it is not considered a panacea by developers or users.

"Software alone is not the answer," said Robert Capon, president of HJC Software, the Durham, N.C.-based publisher of the Virex virus eradication program. "A fundamental level of security awareness within an organization is essential." □

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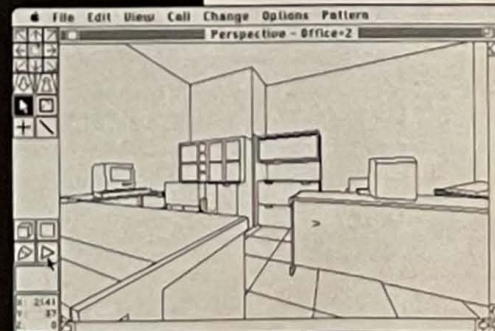
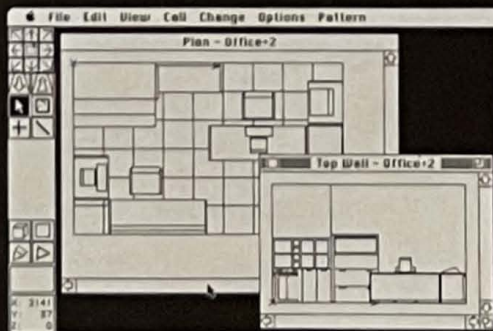
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New Media STEVE ROSENTHAL

Desktop fusion on the Macintosh

The developing fusion of personal computers, video graphics and high-level programming systems is starting to do for the worlds of computer publishing, presentation and training what the laser printer did for paper-based publishing. Suddenly a

whole new range of projects can be done on the desktop by part-time experts with reasonably priced computer equipment.

As with desktop publishing, new media produced on the desktop will affect nearly everyone who uses a Mac to communicate

information. Whether you prepare reports, give presentations, informally train co-workers or develop educational courseware, you'll find that the availability of new media tools will give rise both to better possibilities and to higher expectations.

Although most projects in this area have been done by specialists, that won't be the case much longer. Gradually interactive, moving images will become as common as propor-

tional type and multiple fonts are today.

However, as with the recent nuclear fusion experiments reported from Utah, it's hard to evaluate the promised benefits without some close examination of the practical details.

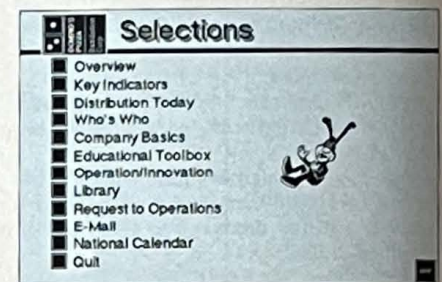
This column is the first in a series that will explore the evolving world of "new media" and "multimedia" on the Macintosh. While MacWEEK already reports developments in this fast-moving field in the News section and features aspects of it in Graphic Arts, this column will add a consistent and continuing window into one of the more important application areas on the Macintosh.

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Sally Nampish, Manager,
Corporate Communications

User Name: MANGA
Routes copy, shares files
and graphics for in-house
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MULTIMEDIA INFORMATION SYSTEM BY ARCADE INC.

This entry screen brings users into the executive on-line info system for Domino's Pizza. It's an example of one business use for multimedia technology.

By multimedia, we'll be referring here primarily to projects that use some combination of sound, motion, computer graphics and externally supplied images in an effort to provide a viewing experience that is more than the sum of disparate parts. Most commonly, that means combining Mac graphics plus information from a videodisc or CD-ROM.

By new media, we mean something broader — not just multimedia projects in the strict sense, but all attempts to use the capabilities of the computer, with or without additional technologies, to transfer information in a way that involves the user in a richer, more accessible and more meaningful experience than plain text or even static graphics.

My hope is that this will be a column for the majority of us who are now or may soon become concerned with new media applications rather than one aimed at full-time developers. I'll be concentrating on the issues that users and user-developers face and on the techniques, successes and results that are feasible in the real world. Many of the key issues are more aesthetic or political than they are technical anyway.

We'll also be getting a lot of help from people in the trenches. Because so much of what is happening right now depends on individual innovations in diverse corners of the field, I've asked a number of people who are working with new media to serve as our occasional scouts and guides.

Highlighting the role of individual creativity does not, however, mean that other organizations aren't important as well. Certainly, the direction and energy that Apple puts into new media will prove critical over the next few years, as will the efforts of the third-party companies that are emerging as key suppliers. A lot of good work is being done at universities, and some large companies are providing good support for their internal developers. We'll check in with them as well.

If you have thoughts about what you read here or about new media on the Mac in general, I'd like to hear from you. The best way is by electronic mail (SROSENTHAL on MCI, STEVE R on AppleLink or 76370,3312 on CompuServe). With all due respect to Apple, Macs alone may let us be our best, but doing our best will take a wider effort. □

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PINNACLE MICRO

Small Hardpac Mac drives upgraded

By Pamela Pliffner

Burnaby, British Columbia — Aristotle Industries Inc. has upgraded the 20-Mbyte and 40-Mbyte models in its portable Hardpac Mac series, a line of products that the company calls "the smallest available external hard drives for the Mac." Aristotle has also announced an 80-Mbyte version of the Hardpac Mac drive.

Hardpac Mac drives now include a second SCSI port to allow daisy chaining and an external SCSI select switch to simplify configuration. The unit can be powered through the floppy port or from an external power supply.

The drives, built around Quantum ProDrive mechanisms, are priced at \$549 for 20 Mbytes, \$799 for 40 Mbytes and \$1,199 for the 80-Mbyte model. The

new models are due to ship this month.

The 2-by-4.5-by-7.25-inch Hardpac Mac drive is small enough to be carried in a briefcase, according to Clive Brookes, Aristotle's vice president of marketing.

At Comdex/Spring '89 Aristotle unveiled an even smaller external drive for MS-DOS computers, using a 2.5-inch drive mechanism. Brookes said that this 1.5-by-3.38-by-5.88-inch drive will be available for the Mac by 1990.

Aristotle Industries Inc. is located at 3226 Beta Ave., Burnaby, British Columbia V5G 4K4; (604) 294-1113. □



Radius' \$4,995 DirectColor/24 board takes advantage of 32-bit QuickDraw's true color capabilities.

Radius sets May as ship date for DirectColor boards

By John Battello

San Jose, Calif. — Radius Inc. disclosed pricing and shipment dates for its previously announced line of 32-bit QuickDraw-compatible DirectColor display boards. The Radius DirectColor/16 and DirectColor/24 boards will ship in May, according to Radius officials.

Not coincidentally, Apple's new 32-bit QuickDraw, which brings true color display to the Macintosh, will become widely available in May, according to an Apple announcement last week at the National Computer Graphics Association conference in Philadelphia.

The DirectColor/16 board will cost \$3,695, and the DirectColor/24 board will ship for \$4,995. Both cards drive the \$4,295 Radius Color Display and are designed for use with any member of the Mac II family.

The DirectColor/16 board, which uses only 16 of the 24 bits of color information possible in Apple's 32-bit QuickDraw scheme, can be upgraded to the DirectColor/24, which uses all 24 bits of color but does not address the eight-bit "alpha" channel that makes up the last section of 32-bit QuickDraw.

Apple has left the final eight bits unassigned, allowing developers to add special effects such as video overlays. According to Steve Becker, product manager for Radius, the extra cost of video RAM needed to address the alpha channel could not be justified. "If the market demands the alpha channel, we will support it in the future," Becker said.

Asked why Radius is offering a 16-bit card, Becker said that it provides an entry-level true color solution. He also said that standard NTSC (National Television Standards Committee) TV output is usually no more than 16 bits, making the DirectColor/16 "ideal for multimedia applications."

The DirectColor series offers a screen resolution of 1,152 by 882 pixels and a refresh rate of 72 Hz. Radius employed NuBus block-transfer technology, which allows the NuBus to transfer video data in faster 32-bit chunks.

Both boards include RadiusWare, a screen software package that adds features such as tear-off menus.

Radius Inc. is at 1710 Fortune Drive, San Jose, Calif. 95131; (408) 434-1010. □

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1stAid Software enters anti-virus wars

Anti-Virus Kit geared toward technical users

By Stephen Howard

Boston — 1stAid Software, a developer already well-known in the data recovery arena for its 1stAid Kit package, has jumped into the increasingly crowded field of anti-viral software with its newly released Anti-Virus Kit.

The \$79.95 kit, available now, focuses on preventing and detecting infection. It provides no tools for removing viruses or repairing damaged applications.

Compared with current competitors like HJC Software's Virex and Mainstay's Anti-Toxin, 1stAid's Anti-Virus Kit is geared more toward technically inclined users.

The core of the new package is VirusGuard, a Control Panel device (cdev) that monitors several types of potentially damaging disk activity. Virus-detection capabilities are provided by two applications: Inoculator, which tracks all changes made to applications, and Same/Diff, which compares the current version of a file with a safe backup.

VirusGuard watches for infection by known viruses, insertion and modification of any executable resource, writes to disk that don't use the standard File Manager, and damage being done to disk directories or documents. It also can check inoculated disks automatically when they are mounted to the desktop and can "software-lock" hard disks.

When a VirusGuard warning appears, users are told the type and source of the suspicious activity, the target and even the specific System trap being used. In response, users can prevent the activity, allow it just once or allow all such actions from that source until the Mac is turned off. The program can maintain a list of applications that are exempt from this monitoring because their normal function would trigger a warning.

VirusGuard also contains an editable list of standard and known viral resources to monitor. Placing additional resource names in this list will allow VirusGuard to detect the activity of new viruses as they become known and eliminates the need for constant updates to

the Anti-Virus Kit, according to 1stAid.

Inoculator places a mini-application on each disk that contains data about the other programs stored on the disk. When the disk is subsequently checked, any difference between the recorded data and the actual files on the disk causes an alert and an immediate virus check. To keep the data current,

Inoculator must be run each time new applications are added to the disk. Inoculator also can print a list of new, changed and infected applications on the inoculated disk.

The French ANTI virus does not add resources, so Inoculator does not detect it directly. Also, because of their "unconventional structure" Ashton-Tate's FullWrite

Professional 1.0 and Great Wave Software's Crystal Paint are flagged as infected even when they are not, according to 1stAid.

Same/Diff, the last step in 1stAid's virus-checking procedure, compares any two files and notes any "non-trivial" differences between them, which could be a clue to the presence of an infection. These can include differences in the content of the data or resource forks and in the contents of similarly named resources.

1stAid Software is at 42 Radnor Road, Boston, Mass. 02135; (617) 783-7118. □

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Kaetron ships TopDown 1.1

Houston — Version 1.1 of TopDown, Kaetron Software Corp.'s hierarchical design and visual outlining program, will ship this week as a free upgrade for all registered users.

TopDown is designed for data flow diagrams, flow charts, business plans, training guides and documentation (see review, Page 105). The \$295 program began shipping in January.

The company said Version 1.1 is a maintenance release that also provides several enhancements:

- Users can now choose how they want TopDown to route the lines that connect its pre-defined or custom symbols to represent a process or information flow. The program will try to use alternate routes to look for a clear path, or users can assign the path themselves.

- A new constrain function for use when symbols are created or resized ensures perfect circles and squares and straight lines.

- Symbols can be aligned by tops, bottoms, sides or centers. Connecting lines are automatically rerouted after the symbols are moved.

Kaetron is located at 11318 Ericson Drive, Houston, Texas 77070; (713) 320-0278. □

Irwin ships higher-capacity tapes

By Pamela Pliffner

Ann Arbor, Mich. — Irwin Magnetics has released a new high-capacity minicartridge tape that increases the storage capacity of its Macintosh tape drives by 50 percent.

The AccuTrak high-capacity minicartridge, a specially formatted version of the standard DC2000 tape cartridge, increases the capacity of Irwin's Model 580 80-Mbyte SCSI tape

drive to 120 Mbytes. Using the same tape increases the storage of the company's 40-Mbyte backup unit to 60 Mbytes.

The new tapes are priced at \$42 each.

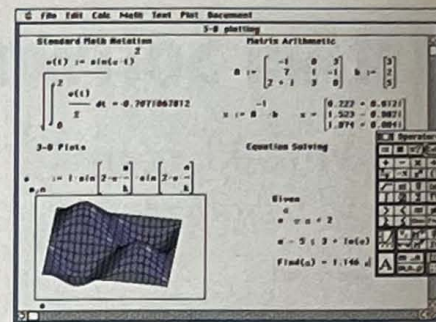
Irwin's EzTape Iconographic software uses a familiar icon-based desktop metaphor for file selection. It works with A/UX as well as the standard Mac operating system and supports the backup of any mounted volume

from any station on a network over all popular Macintosh LANs, including AppleShare and TOPS, the company said.

Since Irwin's backup units for the IBM PC and PS/2 can use the same tape format, users in mixed environments can exchange data simply by swapping tapes, the company said.

Irwin's 80- or 120-Mbyte Model 5080 is priced at \$1,695, including the EzTape software. The 40-Mbyte unit costs \$1,395.

Irwin Magnetics is located at 2101 Commonwealth Blvd., Ann Arbor, Mich. 48105; (313) 930-9000. □



MathCAD can produce color 3-D plots and evaluate integrals and matrices from standard scientific notation. The operator palette frees the user from locating symbols.

Numeric analysis package MathCAD ported to Macintosh

By Becky Waring

Cambridge, Mass. — MathSoft Inc., publisher of the highly successful MathCAD numeric analysis package for the IBM PC, will unveil a Macintosh version this week at Macworld Expo in Washington.

MathCAD's selling point is its ability to simulate the way scientists and engineers work on paper by writing and evaluating equations. Users simply type in complex equations in standard math notation, and results are calculated numerically.

The \$495 program, scheduled to ship in May, is aimed at the technical professional. "With Apple heavily involved in the engineering and scientific markets, we felt we had to follow," said Julie Sall, product manager for the program.

The product, which has more than 50,000 users on the PC side, has been completely revamped to take advantage of the Mac's graphical interface, the company said.

Built-in aids to the equation-writing process include mathematical operator and Greek letter palettes as well as automatic sizing of such items as integral and square-root signs.

Text and formulas can be input anywhere on the screen, and results are updated as expressions and variable values are changed.

On the PC side, numerous vertical application templates have been developed for MathCAD in areas such as electrical and chemical engineering. Since MathCAD for the Mac directly opens MathCAD PC files, users will be able to take advantage of the large library available for the PC.

MathCAD documents "literally look like you would write them in a notebook," said Stan Mansfield, who, as director of mechanical engineering operations at Varian Associates in Palo Alto, Calif., supervises a mixed environment of IBMs and Macs.

Mansfield said he has looked at both Milo from Paracomp Inc. of San Francisco and Mathematica from Wolfram Research of Champaign, Ill., but prefers MathCAD for its ease of use, computational ability, standard mathematical notation and PC-version compatibility. Milo and Mathematica are symbolic equation processors rather than numeric processors, and Milo has little computational ability, he said.

MathCAD's array of computational features includes matrix algebra, integrals and derivatives, real and complex fast Fourier Transforms, statistical functions, Gamma and Bessel functions, and logarithmic and 3-D plots, including surface and mesh plots.

MathSoft is at 1 Kendall Square, Cambridge, Mass. 02139; (617) 577-1017. □

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MacTree Plus offers network and MultiFinder compatibility

By Henry Norr

Incline Village, Nev. — The original tree-view disk management utility for the Macintosh is back in a new version that promises better performance, full MultiFinder and network compatibility, and a number of other enhancements.

GO Technology Inc.'s MacTree Plus replaces MacTree, which was first released in 1987 by the now-defunct Software Research Technologies Inc. The announcement of MacTree Plus came just weeks after The XTree Company of San Luis Obispo, Calif., began shipping a competitive product called XTreeMac.

The new MacTree Plus lets users display their file and folder hierarchy in the form of a vertical or horizontal tree chart. Finder functions like copying, moving, renaming,

deleting, setting MultiFinder memory allocations and launching are available from inside MacTree Plus.

GO calls the \$69.95 program "the fastest file search utility on the market." It can

locate files not only by name but also by creation and modification date, type and creator. A menu command automatically identifies all duplicate files on the disk.

A new feature called MacTreeView lets users see and print the contents of text, Microsoft Word, TeachText, MacWrite, MacPaint and PICT-format files. It also plays sound files and lists the contents of font, desk accessory and StuffIt files. GO said that additional modules giving its program access to other file formats are forthcoming.

MacTree Plus is bundled with DS Backup,

a \$69.95 program from Design Software Inc. of West Chicago, Ill., that can do full or incremental backups to floppy disks or Apple's tape drive. The program works in the background under MultiFinder.

For owners of the original MacTree, including those who received it under a now-discontinued bundling deal with Jasmine Technologies' drives, upgrades to MacTree Plus are \$15 or \$25 with DS Backup.

GO Technology Inc. can be reached at P.O. Box 4535, Incline Village, Nev. 89450; (702) 831-3100. □

Relisys releases direct fax system

By Henry Norr

Milpitas, Calif. — Relisys, a Taiwanese-owned company that made its Mac market debut last year with a line of monitors, this month introduced a Mac version of a unit that can be used to fax documents directly from the Mac and store incoming fax messages on the computer's hard disk.

The Tefax System Model RA2110M lets users choose whether to have incoming fax messages printed immediately on the unit's 200-dpi thermal printer, saved to the Mac's hard disk or both. Outgoing messages can be sent to another Mac with a Tefax or to any Group 3 facsimile machine, the company said. The \$1,495 unit will ship with an application for composing fax messages, including a text editor and a facility for incorporating PICT files created in other applications.

Unlike the fax modems offered by Apple and third-party vendors, however, the Relisys system does not include a Chooser-level driver and cannot transmit formatted documents generated by other Mac applications. The current Tefax application also does not send or receive in the background under MultiFinder, according to Benjamin Chou, director of fax business for Relisys.

Chou added that software the company is now developing, to be available later at additional cost, will add further Mac functions.

Unlike fax modems, which rely on the Mac and attached peripherals for input and output, the Tefax includes its own scanner and thermal print head, offering a normal resolution of 200 by 100 dpi, a fine mode of 200 by 200 dpi and a half-tone mode capable of recording 16 levels of gray. It can be used for local printing, copying and scanning as well as for fax, the company said.

Scanned images are saved in proprietary formats but can be converted to PICT files; the current software does not support tag image file format (TIFF) files, Chou said.

The Tefax is available now in evaluation quantities, the company said. It is due to be released for general distribution under the Relisys label and on an OEM basis later this quarter. A version for the IBM PC AT and compatibles was introduced last fall.

Relisys is located at 320 S. Milpitas Blvd., Milpitas, Calif. 95035; (408) 945-9000. □

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MEDICINE

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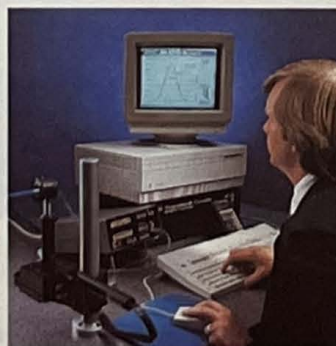
"Without any earlier experience with programming, we were writing our own applications after the LabVIEW 3-day training course." Dr. Anders Ullman uses LabVIEW in clinical pharmacology. Muscle contractions evoked by nerve stimulation or by different drugs are measured via isometric force transducers with a plug-in analog input board. Each channel is monitored on a LabVIEW strip chart.



OPTICS

Newport Corporation

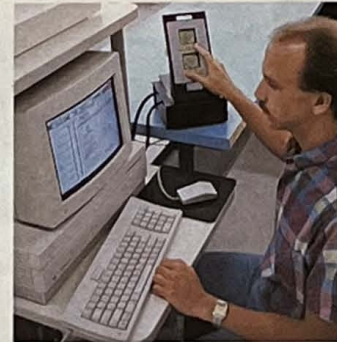
"LabVIEW makes it easy for researchers to create sophisticated optical experiments that anyone can operate." Scott Jordan incorporates LabVIEW with instruments from Newport in applications like this Gaussian laser beam profiler.



AUTOMATED TESTING

Sundstrand-Sauer

"With LabVIEW, I have reduced testing time for our control panels from 15 minutes to less than 1 minute." Jay Herman is in charge of testing Sundstrand control panels used on concrete paving machines. A GPIB-controlled power supply tests the power requirements for these machines. Analog and digital lines on the control panel are tested with the NB-MIO-16 board.



PHYSICS

The University of Texas
at Austin

"We initially set up our system on a MicroVAX. It took 6 months. With LabVIEW and a Macintosh II, we got it working in a couple of weeks." Azucena Overman, graduate student in the Physics Department, researches the chemical properties of surfaces. In her research, LabVIEW controls GPIB instruments and graphs the data collected.



CIVIL ENGINEERING

Stanford University

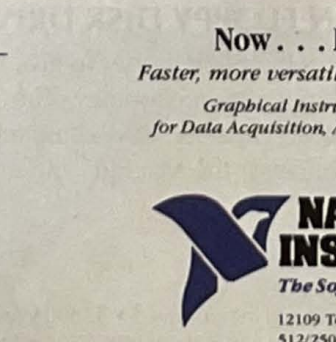
"LabVIEW is the most flexible data acquisition software I've ever seen—it's also a bit of fun." Dr. Steven Monismith of the Civil Engineering Department uses an experimental pond to research double diffusive systems. LabVIEW and an NB-MIO-16 board measure signals from temperature and conductivity probes in the pond, and control a motor that varies the depth of the probes.



SEMICONDUCTOR RESEARCH

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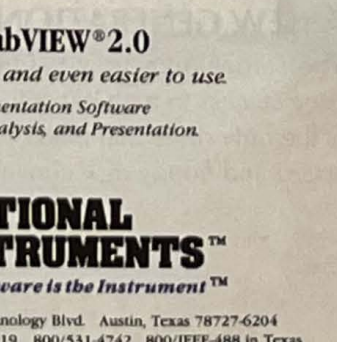
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SIMULATION

Engineering Measurements Company

"LabVIEW saved me several months of development." John Wachs simulates digital signal processing algorithms with LabVIEW. The algorithms are burned into EPROMs on intelligent flow meters manufactured by Engineering Measurements Company.



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MenuFonts 2 upgrade improves speed, adds color and flexibility

By Henry Norr

Tucson, Ariz. — Beyond Inc. last week began shipping an upgrade that gives its MenuFonts 2 utility new speed, flexibility and color. MenuFonts 2 is a Startup document

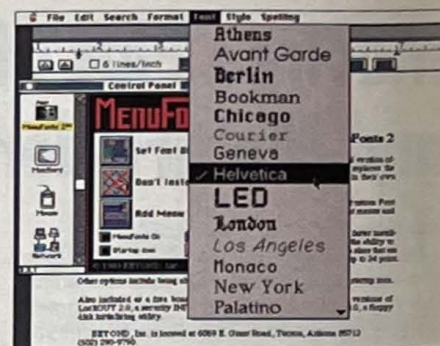
(INIT) that replaces the plain pull-down font menu in most applications with a new version that displays each of the font names in the typeface it represents.

► The latest release, MenuFonts 2 Version

2.02, offers a drastic reduction in the time it takes the software to generate the custom font menu when an application is launched, according to the company.

► An improved KeyScroll feature, targeted in particular at desktop publishers and others with large font collections, allows users to navigate quickly through the menu by typing the first letter of the desired font while the menu is down. The first font starting with that letter is then highlighted.

► Through the Control Panel, users of the new version can now choose any point size



MenuFonts 2 Version 2.02 lets users display names in the actual typeface and sizes from 9 points to 24 points.

between 9 and 24 to display font names.

► Support for color font menus has been added to the program.

► More applications are supported, including QuarkXPress 2.0, MacDraw II and PageMaker 3.01. MenuFonts 2 works in most applications that have a pull-down, pop-up or hierarchical font menu, the company said.

MenuFonts 2 retails for \$49.95. Owners of Version 1.0 can upgrade for \$15, which includes a new manual, while the charge for owners of Version 2.0 or 2.01 is \$10.

Beyond Inc. is located at 6069 E. Grant Road, Tucson, Ariz. 85712; (602) 290-9790. □

Tegra/Varityper shows PostScript-compatible RIP

By Steve Hannaford

Philadelphia — Tegra/Varityper may have brought the day of plug-and-play PostScript a step closer this month. At the Type-X show here two weeks ago, Tegra, a company that has previously used Adobe controllers in its typesetting devices, demonstrated its own PostScript-compatible RIP, called the PCI (PostScript Compatible Interpreter), and a new multipurpose device called the Tegra Image Controller.

The non-Adobe RIP (raster image processor) was developed in-house and will be ready in the second quarter, Tegra officials said.

The \$23,500 Image Controller and the PCI, priced at \$19,500, can be connected to four different devices:

► Tegra/Varityper's \$3,500 XP-800 plain-paper print unit (800 by 400 dpi), with a maximum paper size of 8.5 by 14 inches.

► The \$14,000 XP-1000 plain-paper imagesetter (1,016 by 508 dpi), with a maximum paper size of 11 by 17 inches.

► The \$23,500 XM-72 Laser Film Recorder (2,000 dpi) with a maximum RC (resin coated) paper size or film size of 12 by 24 inches.

► The \$50,000 XM-108 Laser Film Recorder (1,016 dpi) with a maximum RC paper size or film size of 18 by 24 inches.

The RIP can control one plain-paper device and one film device at a time. As the technology evolves, the company said, users will be able to hook it up with a variety of new devices.

The PCI comes with 35 Bitstream versions of the standard LaserWriter Plus fonts.

Noting that Varityper/Tegra also offers 1,200-dpi and 2,400-dpi imagesetters (the 4200 P and 4300 P, respectively) and the VT600 600-dpi laser printer, Joe Freda, product manager for the company, said: "We now have the broadest PostScript-compatible device offering in the industry. We are allowing traditional typesetters to have one imagesetter for both professional and desktop work."

Varityper/Tegra is located at 11 Mount Pleasant Ave., East Hanover, N.J. 07936; (201) 887-8000, ext. 999; (800) 631-8134. □



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9A17

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☐ 04. Graphic Arts
☐ 05. Communications: Publishing, Advertising, Public Relations, Promotion
☐ 06. Government: Federal
☐ 07. Government: Non-Federal
☐ 08. Manufacturing
☐ 09. Education
☐ 10. Finance: Banking, Accounting, Insurance, Real Estate
☐ 11. Health, Medical, Legal

- ☐ 12. Retail, Wholesale, Distribution
☐ 13. Agriculture, Mining, Construction, Oil, Transportation, Utilities

Computer Related

- ☐ 20. VAR/VAD
☐ 21. Retailer/Distributor
☐ 22. Systems House/Data Processing Service
☐ 23. Manufacturer (Computers, Software, Peripherals)
☐ 24. Computer Consultant
☐ 99. Other Businesses & Services (please specify)

2 Your Professional Title (check one only):

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3 Your department/function at this location (check one only):

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4 Are there Macintoshes or other PCs listed below owned and/or planned for purchase within 1 year at this location?

- ☐ Yes ☐ No
 (Write in accurate quantity for all that apply)

	Currently Owned (Quantity)	Plan to Purchase (0-12 Months) (Quantity)
01. Macintosh II		
02. Macintosh SE		
03. Macintosh Plus		
04. Macintosh (Other)		
05. IBM/Compatible Micro		
06. Workstation (e.g. Apollo, Sun)		

5 If your firm's primary business at this location is retailing, reselling or consulting, how many Macintoshes are sold per year (answer one only):

- ☐ A. Retailer: sold per year _____ (specify quantity)
☐ B. Reseller: resold per year _____ (specify quantity)
☐ C. Consultant: Purchased by your clients through your firm's recommendations per year _____ (specify quantity)

6 Please check the Mainframe(s) or Minicomputer(s) at your location (check all that apply):

- ☐ 01. VAX ☐ 02. IBM ☐ 03. Other ☐ 09. None

Required: Company name and company street address must be written below or applications cannot be processed. Please print.

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7 Do you purchase, recommend, specify or approve any of the Macintosh/Compatible products listed below?

- ☐ Yes (If yes, please check all that apply) ☐ No

Computers

- ☐ 01. Macintoshes
☐ 02. Workstations
☐ 03. Minis, Mainframes

Connectivity

- ☐ 10. Local Area Networks
☐ 11. Modems
☐ 12. Micro/Mini/Mainframe Links
☐ 13. Communications Software

Peripheral Equipment

- ☐ 20. Laser Printers
☐ 21. Color Printers
☐ 22. Color Monitors
☐ 23. Hard Disks
☐ 24. Backup Systems
☐ 25. Plotter, Charting Devices
☐ 26. Scanners

Add-in Boards

- ☐ 40. Memory Boards
☐ 41. Graphic Boards
☐ 42. MS DOS Boards
☐ 43. Ethernet Boards

Software

- ☐ 50. CAD/CAM
☐ 51. Graphics
☐ 52. Desktop Publishing
☐ 53. Desktop Presentation
☐ 54. Database
☐ 55. Programming
☐ 56. Accounting, Payroll
☐ 57. Spreadsheets
☐ 58. Music
☐ 59. Project Management
☐ 60. Word Processing
☐ 61. Utilities

8 If you help purchase, specify, recommend or approve Macintosh Computers, software or peripherals, for how many MACs do you have this involvement over the course of one year?

- ☐ 01. 500+ ☐ 05. 10-19
☐ 02. 100-499 ☐ 06. 4-9
☐ 03. 50-99 ☐ 07. 1-3
☐ 04. 20-49 ☐ 09. None

9 Please indicate the communications capabilities that the Macintoshes at your location have (check all that apply):

- ☐ 01. Local Area Network
☐ 02. Communicate with corporate workstations, mini or mainframe computers
☐ 03. Communicate with remote mini or mainframe computers
☐ 04. Communicate via modem
☐ 05. Voice/Data
☐ 09. Other (please specify) _____

10 Indicate how many employees there are in your entire company (check one only):

- ☐ 01. 1000 or more ☐ 02. 100-999 ☐ 03. Under 100

11 Indicate an additional individual at this location who might qualify for a FREE subscription to MacWEEK:

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TOM\INIT tear-off menu software upgraded

By Henry Norr

Nebraska City, Neb. — Advanced Interface Programming plans a May 1 release for Version 1.40 of TOM\INIT, a Startup document that lets users tear off menus from most Mac applications and leave them visible anywhere on screen for easy access.

With the increasing prevalence of large-screen displays steadily pushing up the overall average distance from cursor to menu bar among Mac users, tear-off menus are a coming trend in interface design. HyperCard and Claris Corp.'s MacPaint 2.0, with their tear-off tool palette menus, introduced the concept to many users, and some monitor vendors offer software that makes it possible to tear off most menus, but only with their displays.

TOM generalizes the idea, working with "virtually any monitor" and "the vast majority of Macintosh applications — that is, those that follow well-written Apple programming guidelines," said George Mann, president of Advanced Interface Programming.

The 125-Kbyte Startup document (INIT), written by Steve Kiene and Rod Magnuson of MindVision Software of Lincoln, Neb., provides two basic options:

► TOMs (tear-off menus), which put the full list of options from the torn-off menu on display as if it were pulled down from the menu bar.

► TOTs (tear-off titles), which put just the menu name in a small floating box. When the user clicks on a TOT, the list of menu options appears in the form of a pop-up menu.

With the \$79.95 Version 1.40, users can tear off hierarchical submenus as well as standard menus. Any properly written Mac menu, including the Apple menu and menus with icons and color, can be torn off, Mann said.

Both TOMs and TOTs "float" in front of other windows to maintain accessibility. Under MultiFinder the torn-off menus temporarily disappear when the parent program is not active and automatically reappear when it is activated — at least with most applications, according to TOM\INIT's documentation, which is distributed only in electronic form.

Through the Control Panel, users can configure the program in several ways, including setting key combinations for producing TOTs, for saving the position of TOMs and TOTs, and for putting all of an application's menu headings into TOTs displayed horizontally (creating, in effect, a second, movable menu bar) or stacked vertically.

The Control Panel also displays a list of Unfriendlies, programs under which the INIT is automatically disabled, either in all contexts or only under MultiFinder, to avoid incompatibilities. Version 1.40 will be disabled with dBASE Mac, MacDraft, Version 1.0 of Super 3D, versions 1.0 and 1.1 of SuperPaint, and WriteNow. It also does not work with desk accessories opened under MultiFinder's DA Handler, and under some conditions certain menus in other applications cannot be torn off.

Users can add other programs to the Unfriendlies list.

Dr. Brock Sherman of the Milwaukee Medical Clinic Services Corp. said he has used TOM\INIT since the first version came out this year, and although he had had some problems with that release, Version 1.30 "appears almost bulletproof," Sherman said he finds it "particularly useful for training."

Tom Santos, who was formerly a technical support representative at San Jose, Calif.-based monitor maker Radius Inc., said he

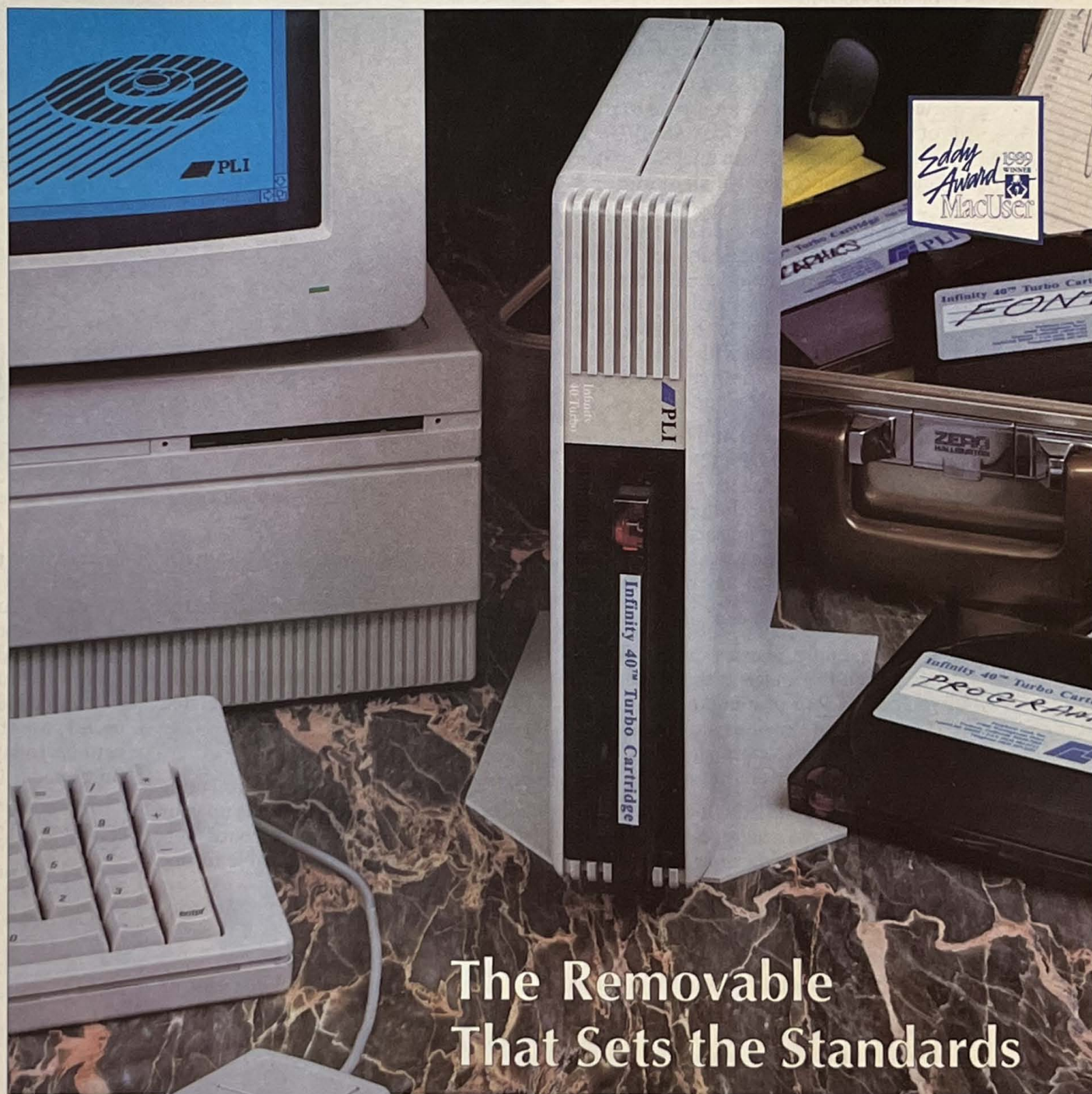
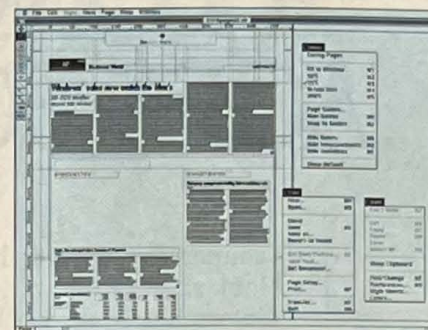
found TOM "superior and more functional," than the tear-off menu software supplied by his former employer. He said, however, that TOM is sensitive to the order in which INITs are loaded into memory.

TOM\INIT owners can upgrade to Version 1.40 for \$15. Advanced Interface Programming offers free overnight

delivery and toll-free telephone support.

Advanced Interface Programming is located at 1224 Second Ave., Nebraska City, Neb. 68410; (402) 873-7358; (800) 622-8674. □

The \$79.95 TOM\INIT Version 1.40, reflecting an increasingly popular trend in interface design, allows users to tear off hierarchical submenus and standard menus.



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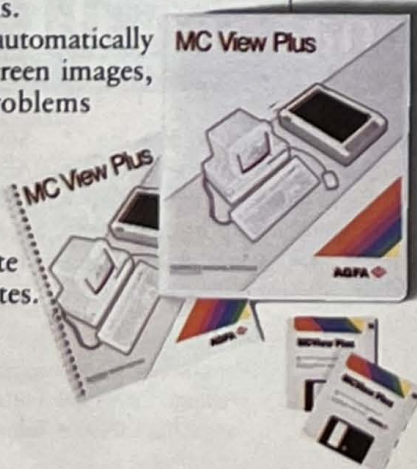
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The AGFA Focus S800 GS: The 1989 MacUser Best New Input Device

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A SHORT SALES PITCH FOR THE AGFA FOCUS S800 GS SCANNER.



Letters

Trade show promoter outlines future strategy

As the show producer of the Macintosh Business Conference and Expo (MBC&E) events, we welcomed your editorial titled "Making sense of the Mac show schedule" (April 4). We are, of course, quite sensitive to the challenges the Mac vendor community faces in trying to keep up with an expanding Mac show schedule. Here's what Cambridge Marketing is doing to help respond to some of those challenges.

► We are listening. You told us that you could not support another major Macintosh event in Chicago in 1989, so we postponed it.

► We do not penalize vendors who do not support all of our shows. Vendors who have the resources to participate in MBC&E/New York this April, but not MBC&E/Southern California in November, will not lose their selection priority position for the 1990 New York show.

► We emphasize MBC&E's focus on professional and corporate Macintosh buyers in everything we do. Exhibitors at our shows can target their strategies at this audience exclusively.

► We are not keeping our 1990 dates a secret. Our New York show is set for July 17-19 at the Javits Center; the 1990 Southern California show will take place Dec. 4-6.

We are committed to producing focused, first-class events for Macintosh vendors who are trying to reach top corporate and professional buyers in the country's two largest Mac markets. Our shows depend upon the satisfaction of our exhibitors and attendees, and we aim to work with both groups to ensure that the MBC&E events deliver, dollar for dollar, a superior return for their investment.

Roy Einreinhofer, president
Cambridge Marketing Inc.
Lexington, Mass

MORE II is more than just an outliner

Don Crabb's column (March 14, "Evolution of the Mac computing

paradigm") could well leave your readers with some mistaken impressions.

One is that MORE II represents a failed attempt to extend the Macintosh computing paradigm through integration. The other is that it is not as good an outliner as its predecessor, MORE.

We all know that one person's essential feature is another's excess baggage. It is apparent that Crabb's outlining needs are very light. His material is eventually placed into a page-layout program, so he has little concern for formatting or output. For him, using a simpler outliner might make sense.

However, we are fortunate to have a large, vocal user base, and these users tend to be more demanding.

In responding to their needs, we may have created more of an outliner program than Crabb wants or requires. But MORE II is the product that thousands of our users asked us to create. To the advanced user, it is the best outline processor available.

Does inclusion of all these features represent a failed attempt to extend the Mac computing para-

See Letters, Page 34

Mac Soapbox KATE SILBAUGH

Terminal relief for the IBM midrange

It isn't hard to imagine why someone would become a high-tech journalist. You get to run beta tests of new software releases, play with the newest hardware before anyone else sees it and follow an industry ripe with rapid growth and change. But for two years I've been far removed from that glamour; I've been covering the ugly ducklings of the computer world: the IBM System/34, System/36, System/38 and the new AS/400. These computers constitute the IBM midrange, a less-than-alluring species of computer.

Fortunately, an invitation to the charisma-in-computing ball may soon be waiting in the mailboxes of System/3X users. The invitation is extended by IDEAssociates in Billerica, Mass. in the form of a board-level product that will allow the Mac to be used as a front end to these dowdy appliances. This development in the world of computing will revamp a machine that is clearly in need of a make over.

System/3X computers, of which there are 300,000 units worldwide, bear the burden of all the dull computing there is to be done. That isn't to say these computers aren't important. Some poor machine has to do the accounting, inventory, order entry and distribution work of every company. To this clunky machine, cost-effectiveness is the master, functionality the slave. Output comes on reams of green-and-white-striped pages in dot-matrix print, with columns of numbers interspersed with the



occasional, and more racy, lines of text. We're not talking Presentation Manager or the Mac look and feel here; this side of the industry is still excited about an 18-pin vs. a nine-pin printer.

I don't mean to sound like a snob. Most businesses do require the workhorse capability that the IBM midrange offers. And these computers can count some flamboyant people among their users. In fact, Apple has about two dozen System/38s and AS/400s networked throughout the United States, Canada and Europe and runs its entire distribution operation on these machines.

Of course, Apple's not the kind of company to endure the duller parts of the business world. So a

few years ago it set out to find a solution that would allow it to use Macintoshes as front-end terminals to these stuffy machines. Naturally, Apple turned to the numerous third-party vendors in this market for a product that would serve that function but came up empty-handed because one didn't exist. Eventually, after Apple conferred

with KMW Corp., a System/3X vendor and manufacturer of data communications products and protocol converters, a solution was found. KMW created a protocol converter to connect the System/3X to the Macintosh. KMW also developed file transfer software and allowed Apple to customize it for its own operations.

Obviously, Apple is a committed Macintosh user, but a company that is less dedicated isn't about to build a data processing department around a terminal that requires a protocol converter. The KMW product sold well enough, but it seems that it went to those few Macs that have already slipped through corporate doors rather

See Soapbox, Page 35



Editorial

The bad news bearers' progress report

A random walk through the pages of MacWEEK invariably turns up news of innovative technologies, ingenious new products and resourceful application strategies. But interspersed with the good news is an increasing volume of stories we'd rather not have to report: late product shipments, contentious lawsuits and spectacular business failures.

Two weeks ago, for example, we dissected the woes of Aba Software, whose efforts to substitute marketing for product development have led the company into Chapter 11. And just last week we discovered the answer to the question, "What if they gave a trade show and nobody came?"

The news Mac buyers need. For business buyers implementing Macintosh strategies in large organizations, such negative news is as important as reports about new products. The corporate funds that these influential users manage for new technologies is large, and their organizations will have to live for years with the implications of the strategic purchasing decisions they make today.

Despite some bad news, we believe that Apple and the extended Macintosh community are making most of the right moves to ensure that Mac buyers will continue as innovation leaders in their organizations and industries. Here's why:

► The Macintosh itself is in a stronger position today than ever before. Apple's recent introductions of the Macintosh IIcx and SE/30, along with expected future releases of portable and low-end models, provide a full range of mainstream systems for the first time in the Mac's history.

► With its new systems, Apple has set a pricing structure that looks truly competitive for the first time.

► A new generation of system software is around the corner that will give an additional lift to a still-vital architecture and will generate a new round of software and hardware innovation from third parties.

► Apple will soon deliver on important connectivity solutions that will overcome lingering objections to the Mac's suitability in multivendor environments.

► The company is targeting substantial new technologies such as interactive multimedia and integrated mail services that could open major new markets.

► Apple is developing support systems to provide corporate Mac managers with the tools to implement mission-critical systems.

Seeing through the hype. Of course, the Macintosh market today is still one-tenth the size of the market for IBM PCs and compatibles. After years of neglect from the mainstream personal computer industry, the Mac became the hot platform during the past two years. Dozens of companies came into the Mac market, many with the expectation that any product they put out would be eaten up by hungry Mac buyers.

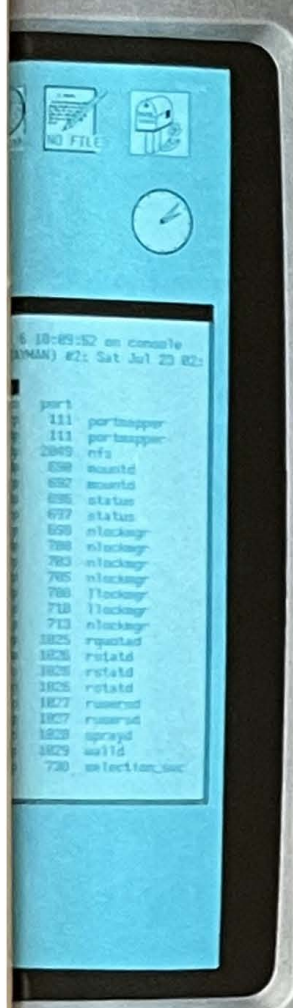
What some companies didn't count on was that Mac buyers are a discerning lot, able to see through marketing hype and find products that are truly useful. If some "me-too" products don't fare well in the market, if some marketing channels wither, and even if a major shakeout comes, which we don't foresee, the best interpretation is that the vigor of the market has merely asserted itself.

The Mac market provides lucrative opportunities for those who are quick and smart, but not necessarily for anyone who comes along with an investment. That, of course, is as it should be. This is still a market that rewards risk-taking and fresh thinking, both among developers and users. And even though that sometimes leaves us with bad news to report, we wouldn't want it any other way. □

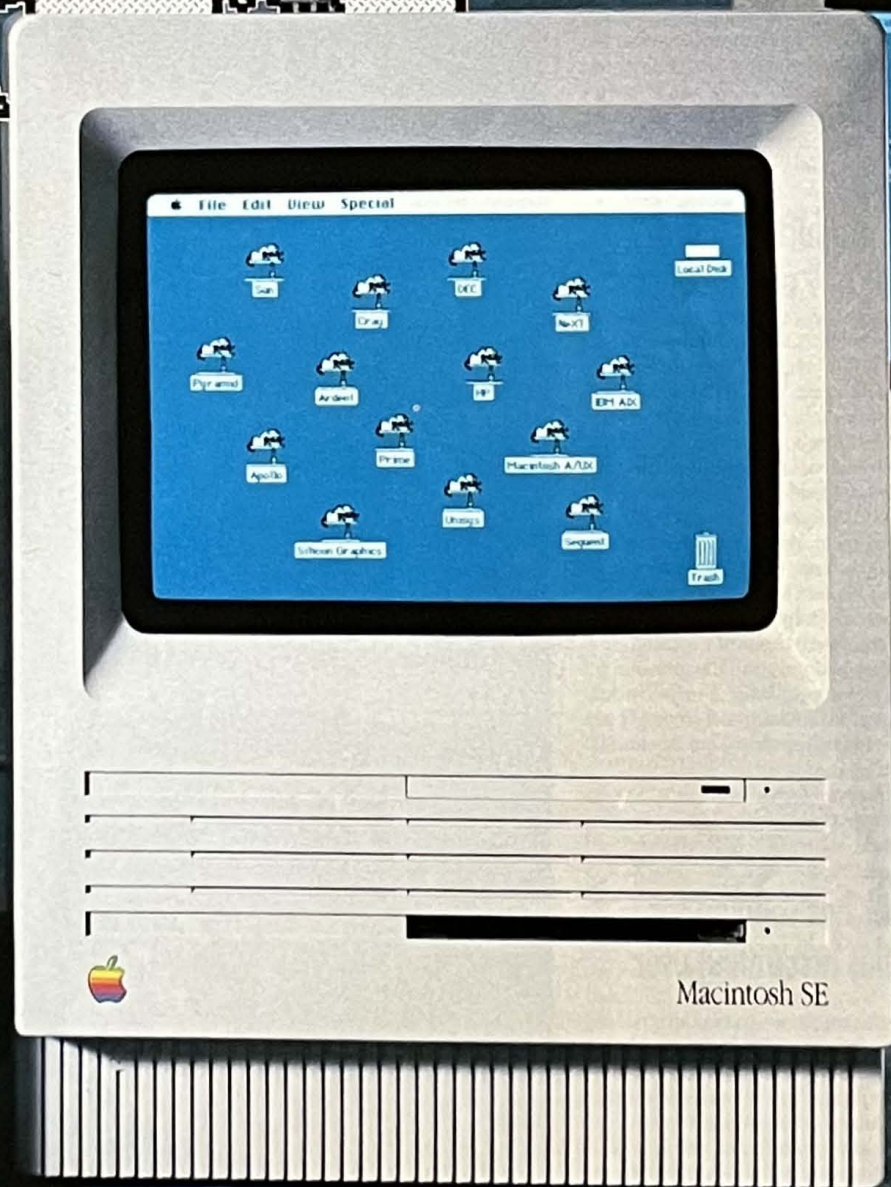
We've added exhibits to the AppleShare server zoo.

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Until recently, the AppleShare™ server zoo had just one exhibit. The Macintosh™ acting as dedicated file server. Macintosh users in search of an AppleShare server couldn't see anything else. The zoo was boring.

The GatorBox™ puts new life into the AppleShare server zoo. Several dozen species worth, in fact. The GatorBox makes any server which supports the Network File System™ (NFS) look like an AppleShare server. Just plug your Ethernet and LocalTalk™ networks into the GatorBox,

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The GatorBox is the first *intelligent* network gateway because it translates protocols at the application level. That means AppleShare client software runs on your Macintoshes, NFS runs on your NFS servers, and *Cayman software runs only on the GatorBox*. Which makes using a

GatorBox to integrate your Macintoshes into an Ethernet/NFS environment orders of magnitude simpler—and much less expensive—than installing AppleTalk or TOPS protocols on all of your NFS servers.

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No other LocalTalk-to-Ethernet

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For more information on the GatorBox, contact Cayman Systems at (617) 494-1999.

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Letters

Continued from Page 32

digm? I don't think so. The Mac paradigm goes beyond the operating system's provisions for providing a consistent user interface. Attractive output and WYSIWYG display — with full user control — have always been key elements of computing on the Macintosh. Trends like color and an increasingly advanced user and hardware base are part of an ongoing evolution of this paradigm. In this expanded framework, the features of advanced, integrated programs like MORE II, FullWrite and Wingz fall into place. While it is true that the paradigm is moving in the direction of "families of products that work seamlessly together," the future is not here yet. Until it is, one need look no further than the limitations of using Acta along with PowerPoint or Cricket Presents... vs. the power of integrated outlining in MORE II and Persuasion to see that today's best software solutions sometimes require integration. This is not some misguided paradigm shift. It is simply an attempt to address the needs of our users as directly and thoroughly as possible.

Doug Baron
product manager for MORE II
Symantec Corp.
Mountain View, Calif.

Just slide production, pure and simple — and cheaper

Your article titled "Creating slides gets easier, better" (GA, March 28) confused the issues of slide production and presentation software. I am not interested in desktop-based presentations, but my company does use slides. We reviewed nearly all of the software choices you listed and then chose one you did not list: Professional Image from Stokes Slide Service. We chose it because it is flexible (the package works with any PICT file), fast (if slides sent via a toll-free telephone number are in by 2 p.m., they are delivered to you by 10 the next morning, with no delivery charges) and inexpensive (2,000-line slides are only \$7). Furthermore, the tech support is fantastic and free. The bottom line is beautiful slides, quickly and inexpensively.

John Noell, research associate
Oregon Research Institute
Eugene, Ore.

Competitor has solution for Great Plains accounting user

I'm writing in reference to two letters I saw in your newspaper. The first was published in the Nov. 29, 1988, issue of MacWEEK and came from Darrell Hatt of Downsview, Ontario. Hatt was complaining that, among other things, his Great Plains accounting software could not "determine a sales representative's or customer's sales volume by product or category."

The second letter, published in the Feb. 7 issue, came from Gretchen Heim of Great Plains Software. Heim said that "the fault does not lie in the Great Plains product. As we discussed with Hatt, the technology does not exist in the Mac environment to produce those results."

Frankly, I'm at a loss as to what Heim is talking about. Layered is currently readying for shipment a new version of our Insight Expert Accounts Receivable module. This enhanced version includes a data import feature (not available in Great Plains) as well as

new printing capabilities that give the end user much more control over the formatting of reports.

When we read the letter from Great Plains in MacWEEK, we decided that we had to add detailed sales analysis reporting capabilities to a soon-to-be-released version of Accounts Receivable, demonstrating that the problems Hatt was experiencing with his Great Plains accounting package had nothing to do with technology in the Macintosh environment. We programmed this in three weeks using two programmers, so you can

see that it was not a complicated project.

We could have made this reporting capability even more flexible, but we felt that this was something we should give to our customers now and not delay release of the product by six to nine months. We also added the capability to export much more detailed sales data to a text file that can be imported by any Mac application for analysis.

Geoffrey Booty
vice president, engineering
Layered Inc.
Boston, Mass.

Lack of 3-D capability doesn't hurt Claris CAD

I had been anxiously awaiting MacWEEK's review of Claris CAD since the product was announced. Claris CAD is probably one of the best two-dimensional CAD programs on any computer platform, whether micro, mini or mainframe.

The title of the MacWEEK review, "Claris
Continued on next page



Soapbox

Continued from Page 32

than persuade anyone to go out and buy a Mac specifically as a front end to an IBM host. Meanwhile, the average IBM midrange user is crunching away at numbers, unaware of and therefore uninterested in what Apple has done with the Mac in its own IBM-based data processing department.

Enter IDEAcomm MAC from IDEAssociates. Every new product in the high-tech marketplace is touted as the one that will revolutionize computing. Very, very occasion-

ally, a product is announced that might do just that. IDEAcomm MAC, which came out early this year, is a board-level product that connects a System/3X or AS/400 to a Mac.

IDEAssociates is not a new company to the System/3X world. It's a respected player in the business of connecting various things to the System/3X and AS/400. The company apparently came out with IDEAcomm MAC in response to a simple demand from IBM customers who work with one or more Macs.

Finally, imagination meets the IBM midrange. Long-time Mac users must be

pretty jaded on the subject of flashy features, but for a System/3X user, mixing a Mac with a System/3X is like rediscovering the computer. The possibilities are mind-boggling. A world of System/3X data that has never been outside of its own backyard can be grabbed off of the terminal and pulled into a new world. It will dance through HyperCard, sashay through color and graphics applications, and find itself in a new set of clothes that take it from K-Mart to Perry Ellis.

And the System/3X MIS manager won't just have to think simply of how to work

within the applications already in existence, but will actually be able to re-examine his or her attitude toward data altogether. There will be powerful new possibilities for presenting host data, and end users will be able to create whatever output format they desire. Macintosh, I've always heard such good things about you; it's so nice to finally make your acquaintance. □

Kate Silbaugh is a Chicago-based freelance high-tech writer and a former editor of Systems/3X World magazine.

Aside from being a tad easier to install than a satellite, the Hayes Smartmodem 2400M™ for the Macintosh® II and Smartcom II® for the Apple® Macintosh make up the most advanced communications system you can put inside a Mac®.

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To make them even more efficient, the system offers Smartcom II for the Macintosh. It's the only software designed to take full advantage of the power and graphics capabilities of all of the computers in the Macintosh family. For example, you can program your own on-screen buttons to create a personalized user interface. You also get features like moveable icons, custom color selection and full support of ImageWriter® and LaserWriter® for incredible graphics. You can even run the system unattended using an Autopilot feature. Of course, there is much more you can do with a few simple clicks on standard, easily identifiable icons.

By now it's probably clear that whether they're just used with the Macintosh II or shared by Mac computers on an AppleTalk Network, the Smartmodem 2400M and Smartcom II make a communications system that can't be beaten. At least not by anything on this planet.



Hayes.

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Letters

Continued from previous page

CAD: Clear, simple interface" (March 28) concurred with my feelings, but as I read on, I realized that author Philip Robinson had somehow missed the intent of the program.

Why do some reviewers (and perhaps the CAD industry) always equate a 3-D capability with high-end or full-featured CAD programs? This "checklist" approach to reviewing software makes it difficult and confusing for those trying to select and implement software. It's also why software developers keep adding features that are marginally useful. Does every program really need integrated Draw and Paint tools?

There are high-end two-dimensional CAD programs just as there are low-end 3-D programs. Claris CAD is a high-end two-dimensional drafting program optimized for producing engineering or technical drawings. Why should users be forced to pay for features that they don't want or need? Three-dimensional capability and its advantages for modeling and visualization should not be underestimated, but it should not be automatically considered to be an integral part of all "well-dressed" CAD systems.

It has been my experience (more than 10 years of CAD system management) that during the past three to five years two-dimensional CAD has undergone a renaissance. Most of the major CAD companies, realizing that fewer than 5 percent of the users work in 3-D, have introduced two-dimensional "drafting" packages. Claris has created a program that will appeal to 95 percent of the CAD market as well as to all of those technical professionals who aren't using CAD today.

While some of this rebirth is due to the advent of low-cost personal computers, much is due to the realization that for 3-D to be truly effective it must be completely integrated with two-dimensional capabilities. One must be able to generate two-dimensional drawings from a 3-D model with complete referential integrity. This has occurred only on a limited basis even with mainframe-based CAD systems. Perhaps it will be possible with the next generation of solid modeling software and 68040-equipped Macs.

In the interim, the engineering drawing is still the medium of exchange for most use. A focused program such as Claris CAD, which leverages the power of the Mac to create these documents, is an excellent choice.

*James K. Anders, CAD consultant/author
Computer Methods Corp.
Marlton, N.J.*

P.S.: Robinson's reference to the lack of a "stroked" or vector text option can easily be addressed by using the Geneva font. With it, pen plotter users can plot text with single passes of the pen.

Send letters to MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105. MCI number 323-1203; fax number: (415) 243-3650. MacWEEK reserves the right to edit letters for clarity.

Macs network their way into the government fold

On its way to interoperability, the Mac is up against strong incumbent competition in its bid for government computer sales.



By Elinor Craig

Washington — As the government microcomputer market continues to grow, Apple is working to overcome some serious obstacles to its further penetration of that market.

The federal government spent an estimated \$810 million for microcomputers alone in fiscal 1987, the last year for which General Services Administration (GSA) figures are available. And according to Apple spokeswoman Ronnie Sarmanian, the Cupertino, Calif.-based company expects annual

microcomputer sales to government agencies to reach \$1.4 billion by next year.

The most recent GSA figures show the rate of microcomputer acquisitions by federal government agencies growing by nearly 200,000 units during fiscal

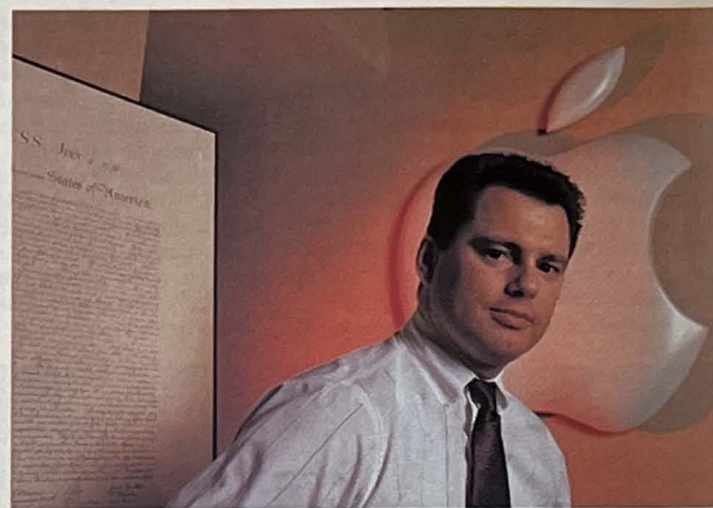
year 1987. This growth represents a substantial increase over the 67,502 computers purchased in fiscal year 1985, when the last survey was conducted.

Government sales of all sorts accounted for only 2 percent of total products shipped from Apple last year, according to Dataquest of San Jose, Calif., but purchases by the federal government represent the fastest-growing segment of Apple sales. Tom Ellis, president of Apple government sales contractor Falcon Microsystems Inc. of Landover, Md., said his company has already sold three times its entire 1988 total of Apple products in the first quarter of this year.

Ellis refused to divulge precise sales figures, but well-placed company sources confirmed that Falcon placed a mammoth \$40 million order to Apple last month in anticipation of continuing sales growth.

But in what is a typical federal government scenario, Michael Keane, who oversees information systems purchases for the Department of Commerce, favors IBM PCs or clones when he buys microcomputers.

"The Macintosh's biggest problem is compatibility," Keane said. "If you have a Mac, you can't get



Phillip Dunkelberger, Apple federal sales development manager, said A/UX 1.1 will include FIPS and that Apple is working with the government on GOSIP, an OSI derivative.

on the [Department of] Commerce-wide networks. So do I go all Mac? I just can't afford to."

Keane's comments illustrate the criterion of "interoperability," a cumbersome word for a priority standard of compatibility. As Phillip Dunkelberger, Apple federal sales development manager, said, "Government microcomputer managers want all the computers to work together."

To this end, Falcon is concentrating on complete solutions, which, according to Ken Hansen, vice president of marketing, "will include a new network division that will configure and install complete networks."

On Apple's side, the sales force is focusing its pitches on how the Mac can fit into the government environment.

"We're promoting the Mac as a friendly front end to [networks and

data banks]," said Dunkelberger.

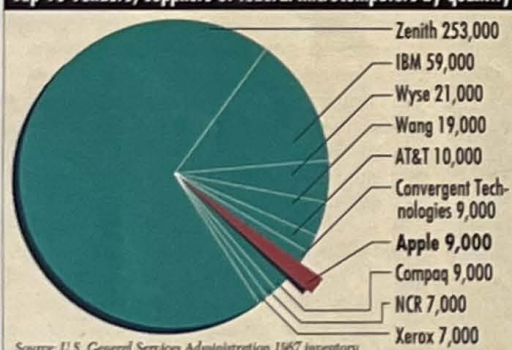
"And we're working with third-party developers to have the capacity to meet the government's set of standards for security."

According to Dunkelberger, Apple is working to respond to other standards as well. The Federal Information Processing Standard (FIPS), a mandate for a common interface by 1990, is included in A/UX 1.1. And, said Dunkelberger, "we're working with the government on GOSIP, the government open systems interconnect profile, which is essentially the government standard for interoperability, a derivative of open systems interconnection [OSI]."

But other problems must be solved before the Mac will be fully accepted into the government fold. There is no token-ring Mac net-

See Federal market, Page 40

Top 10 vendors/suppliers of federal microcomputers by quantity



Federal users fight red tape to keep Mac orders flowing

By Carole Healy

Washington — More Macintosh users groups are springing up in federal government agencies around the country than the popular computers championed by their members.

Some, such as the 400-member group at the Army's Picatinny Arsenal in New Jersey and the 180-member group in the Pentagon here, have been in existence since the Mac penetrated government offices in force four years ago.

Other groups, like those at NASA headquarters and the National Institutes of Health (NIH) here, the U.S. Military Academy at West Point, N.Y., and the Point Mugu (Calif.) Naval Base, have been popular and active for almost as long.

And still others have been organized within the past year at the departments of State, Com-

merce and Energy, and at the Smithsonian Institution.

These groups have formed to share information and problem-solving resources to overcome such perennial government frustrations as long and involved procurement processes, connectivity headaches and MS-DOS-minded computer-support personnel. They have also increased their clout in order to obtain support from Apple and third-party vendors.

A guide for navigating the seas of red tape. Dave Lavery, head of the Mac users group at NASA headquarters, said it took more than 16 months to put through NASA's first large allotment of Macs, worth about \$2.5 million, because of the long and convoluted federal procurement process.

Users groups combat this time-consuming tangle of red tape in a

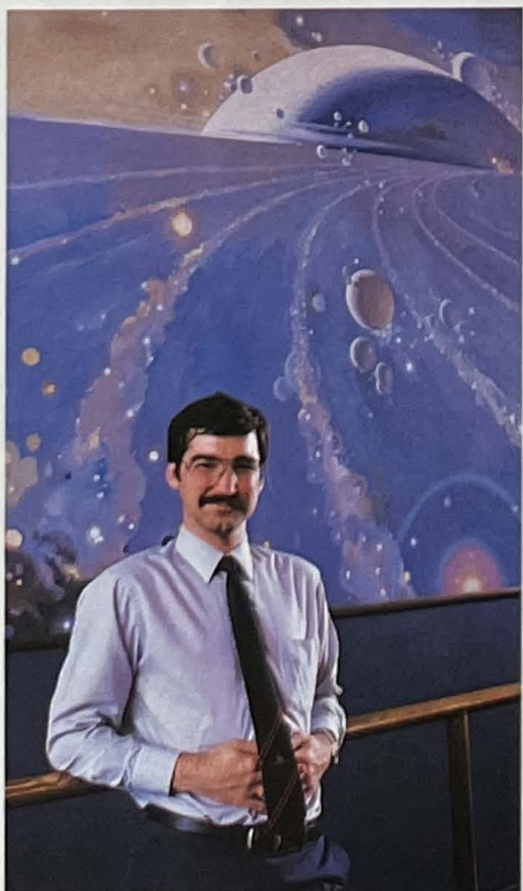
number of ways. "A lot of it involves the phrasing used in the procurement request," Lavery said. "Once you find a set of words that works, you can use those words to write a contract. It becomes boilerplate, and copies of it become available to members who are requesting similar solutions."

Members of federal users groups also trade valuable purchasing information. A member of a users group might get approval to buy an indefinite quantity of Macs, for instance, with a cost limit of \$20,000. If that person's office only spends \$10,000, the remaining balance can be bought by anyone in the organization who has the dollars to spend. "When those buys get put in place," said Lavery, "we make sure people in the users group know about them."

And the groups serve as a place

See Users, Page 40

NASA's Dave Lavery: "Members don't want marketing hype. They want someone who can understand the technical intricacies of a product, but they're not interested in the bit and byte levels, so it's a hard balance to strike."



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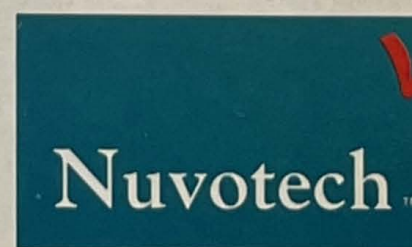
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High stakes in systems integration

By Gardner Terrell

Washington — While most of the growth in Apple's federal sales so far has been through traditional no-bid purchases made from the government's General Services Administration schedule, Apple's Federal Systems Group is moving to establish alliances with federal government systems integrators in an effort to diversify its sales effort.

The stakes are high: As the federal bureaucracy moves to implement the goal of increasing computer literacy among government employees mandated in the Labor Department's 1987 study, "Workforce 2000," the portion of the federal budget targeted for computer purchases gets larger every year.

Apple is attempting to increase its share of that sales pie by entering into strategic alliances with large systems integrators that contract with the federal government and by affecting the way the government writes the specifications for the computers it purchases.

The term "integration" means that parts of the system being purchased need to be brought together into a larger whole system. The integration might be for a new system or for expansion of a current system. In any case, the new components are required to talk to one another through some kind of network.

To fulfill their contracts, systems integrators must not only have a source for computers but must be able to provide service and support, sometimes through the use of subcontractors such as trainers and maintenance technicians.

Apple Federal has been encouraging systems integrators to become Apple Integrated Systems (AIS) partners. Under "partnering agreements," systems integrators include Macs as components of the large computer systems on which they bid to supply the federal government.

From bottom to top. As explained by Phillip Dunkelberger, Apple federal sales development manager, there are three general levels for selling within the federal marketplace. The first, accounting for 25 percent to 30 percent of federal micro purchases, is via the GSA schedule, which provides government agencies with a pre-negotiated contract, releasing them from the obligation of putting the purchase out to bid. Falcon Microsystems has an exclusive sales agreement with Apple for this type of purchase.

The next level, representing about 7 percent of all micros purchased by the government, is purchases from disadvantaged and minority businesses under "set-aside" programs, also without bidding.

It is at Level 3, the category with the largest dollar volume, that the systems integrators are found. Here, under open, advertised bids, is where the multimillion dollar contracts are finalized for special terms and pricing, unique parts, support and training agreements, additional hardware modifications, and systems integration.

"We try to position ourselves as full partners with systems integrators to sell to the government," said Greg Shuk, manager of the complex systems group at Apple Federal. "We're pushing not only the Mac platform

itself, but the Apple Federal organization. We have senior program managers who are responsible for the day-to-day interface; engineers who specialize in other operating systems, such as Unix and MS-DOS; and technicians who have the knowledge to recommend different kinds of software solutions."

Shuk described the more than a dozen companies that have signed agreements under the AIS program as a group with "significant penetration into the government market, which coincides with ours."

He added that the main focus in wooing

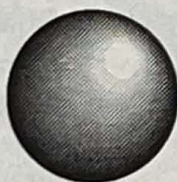
executives from targeted integrators is on "communicating what Apple brings to the game — what differentiates us from the rest of the pack. We've been holding an ongoing series of meetings with [executives from targeted integrators] at our executive briefing center in Reston, Va., where we've discussed nuts-and-bolts issues such as the compatibility of our A/UX operating system and networking protocol."

Shuk said that a primary challenge is to "convince them that we can fit into a multi-vendor environment and work with them in a

way they are accustomed to. We spend a lot of time demonstrating that the graphical user interface and hypermedia can be translated into increased productivity."

The meetings have been a success in Shuk's eyes, but the success may have come as much from the quality of the product itself as from the marketing effort by Apple. Walt Culver, vice president of systems integration at Computer Sciences Corp. (CSC), the second-largest federal government systems integration company, said that the impetus for including Macs in his company's bids came

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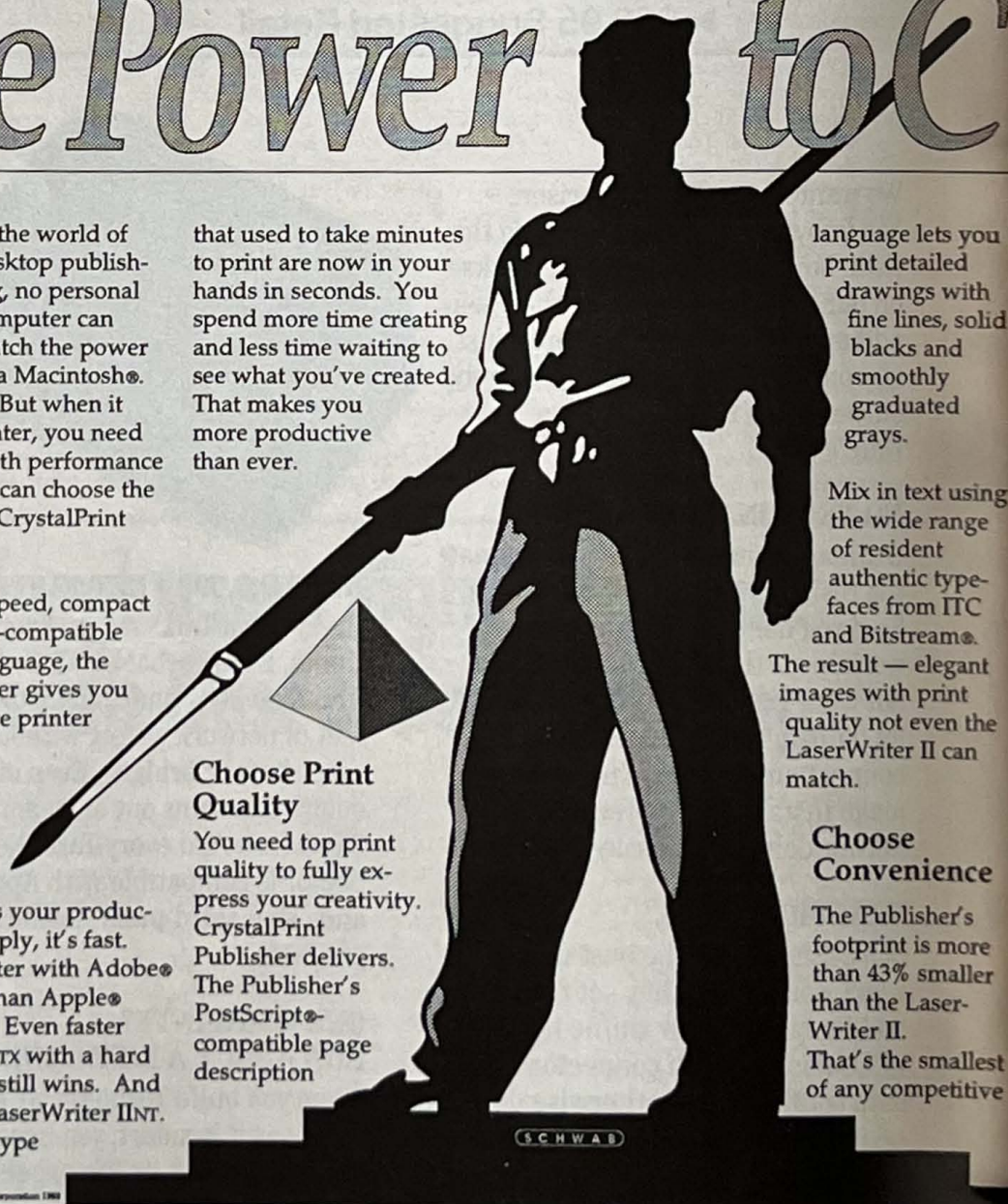
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from employees in government agencies who wanted to use the Mac.

"Within the past six months," Culver said, "CSC has included Macs for the first time among some of the federal government systems bids. But so far we have not actually installed Macs. We are circulating the Apple AIS proposal among the various business units in our company for comments."

Plastic Reel Corp. of America, another large federal government systems integrator, has included the Mac in recent contract bids but so far has failed to win any bids. Apple is

also known to have signed AIS agreements with Electronic Data Systems; Systems House; Peat, Marwick, Mitchell & Co.; and Booz, Allen & Hamilton. Other large systems integrators have said that they would be happy to enter into agreements with Apple and to include Macs in their systems but have not yet had occasion to do so.

Big bids, big snags. Whether the impetus comes from the efforts of Apple Federal or from employee initiative, the desire for the Mac is increasing, according to Dan

Gillis, Falcon vice president of sales. "The Treasury Department has specified that the Mac II and SE be included in a proposed contract up for bid," he said. "The Post Office has also included the Mac in a proposal. It's easy to see why Apple is investing so much effort into penetrating the systems integration area; this Treasury bid is expected to be about \$400 million, and the Post Office bid will be about \$100 million."

Neil Chernoff, head of commercial systems integration at Booz, Allen & Hamilton, attributed the recent growth of the Mac as a

system component to the innovation of new Mac products. "Eighteen months ago," he said, "the Macintosh was a proprietary product with its own operating system. Data exchange was possible only to a limited extent. The IBM and Mac systems were just beginning to talk to each other, and a slight level of interface with mainframes and minis was possible, but it was all very limited."

"Since then new connectivity products have made it possible for Macs to connect to standard networks and have made the Mac an equal competitor with the IBM PC."

The Mac has thus become, he said, "not just a competitor but a cooperator. Users and developers are no longer trying to make the Mac into an IBM. This lets each machine do what it does best with the data being shared. That, in turn, makes the Mac a much more attractive addition to a network, even if most of its units in the system are low-budget PC compatibles. The trend toward networks that can accommodate both systems is just beginning."

But if the federal pie is to have an Apple flavor, contract specifications must be written so that the Mac is not excluded from competition as it has been in the past. Apple recently protested to the Navy Atlantic Fleet Command about guidelines that specified the purchase of computers that use Intel 80286 microprocessors, the central process-

"The Mac has thus become not just a competitor but a cooperator."

— Neil Chernoff of Booz, Allen & Hamilton

ing unit of the most popular IBM PC and its clones, thus excluding the Mac from competition. This followed a protest to the Air Force on bid specifications that were also written in a way that excluded the Mac from the \$1 billion Desktop III contract.

Chernoff said government procurement practices haven't caught up with the technology. "The government is still buying computers the way it did in the 1970s. It tended to look at one problem and then go out and buy a set of computers to solve that problem, which left many government agencies with a huge conglomeration of computers that couldn't interact with one another," he said. "Then in response, beginning in the 1980s, there was a strong trend toward standardization. As a result, the government standardized around MS-DOS for micros and Unix for minicomputers. Since this standardization has taken hold, the specifications required by the government automatically excluded the Mac."

Got a spare tech? Apple is not the only beneficiary of the Mac's growth in the federal market. In addition to Macintosh third-party developers, subcontractors that offer services such as training and support are seeing an increase in business. Future Enterprises Inc., the oldest and largest computer training facility in Washington, recently became an Apple Training Alliance member. "We often bid as training subcontractors," said Al Horowitz, company marketing director. "Until now, we've only bid on MS-DOS contracts. With the increased demand for Mac training, we'll be bidding on Mac systems, too."

At Falcon Microsystems, the growth has been even more rapid. "We've expanded our staff by one-third in the first three months of the year," said Tom Ellis, Falcon president. "Do you know any good trainers or technicians? We can probably use them." □

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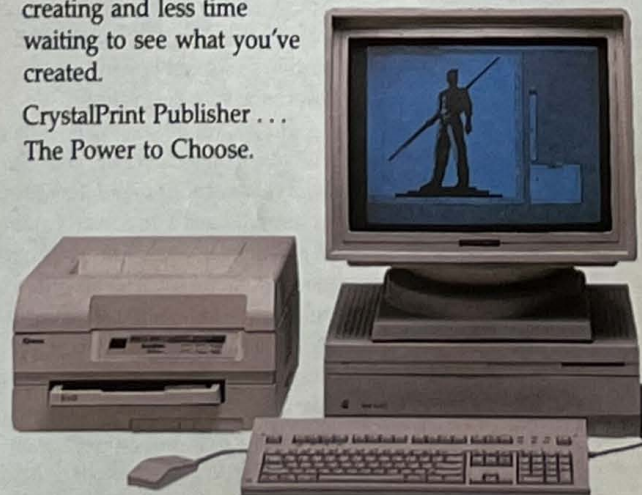
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The Power to Choose.



Users

Continued from Page 36

for members to trade solutions to frustrating problems. Wayne Rasband, a member of NIH's Biomedical Research Mac Users' Group (BRMUG), said that even small purchases, such as a \$10 software update, are a problem because "you can't just write out a \$10 check." But BRMUG members discovered a bureaucratic mechanism involving a specific form and a trip to the cashier's office as a way to walk around the paperwork problem.

Lyle Eesley, co-chairman of the Washington Apple Pi's Federal Special Interest Group, likened users group members to guerrilla warriors in an entrenched bureaucracy. "Guerrilla warriors sometimes have a much better information flow than established bureaucracies. The informal chain works better than the formal chain," he said.

Networking about networks. Network issues are key in the federal environment. The Naval Research Laboratory Macintosh Users' Group (NRLMUG) recently

hosted a half-dozen vendors who presented connectivity options to NRLMUG members, who are among the 4,000 people using a wide range of LANs in 29 buildings that constitute only part of the NRL. The NRL networks include AppleTalk, Ethernet, communication servers and a SPACELAN baseband network that connects six contiguous buildings. They are part of the NRL-wide broadband network, which is, in turn, part of the Department of Defense-wide ARPANET.

"All our people are interested in getting on

networks, whatever their personal computer is," said Pat McConnell of the Naval Research Laboratory's Naval Center for Space Technology. "If [networks] are not already ubiquitous in most of the federal government, they soon will be."

Under the federal government's largest roof, said Steve Broughall of the Pentagon Mac User Group (PMUG), networking is even more complex. "Literally every type of microcomputer that's sold in this country is being used somewhere in the Pentagon. The challenge is to integrate the Mac into that multivendor environment."

Broughall added that PMUG meetings are designed for "people networking as opposed to hardware networking. In a lot of cases, our members act as systems integrators. We were doing connectivity when Apple was still just talking about it."

At the nation's cultural treasure trove, the Smithsonian Institution, users group founder George Venable also described networking as a long-standing problem, adding that bringing Macs into the Smithsonian has not been smooth. "The Smithsonian is very large and very diverse," Venable said. "We're scattered all over, in old and new buildings, some of which have physical problems. But I keep trying to assure the information management people that it's no problem, that if they get a network in here we can probably interface with it."

Hype vs. tech talk. Like most users groups, federal users groups are faced with the challenge of providing a platform for information and discussion at a level that members find most useful.

NASA's Lavery puts out a survey a few times a year and gets plenty of feedback. "Members don't want marketing hype," he said. "They like to ask tough questions and want someone who can help them understand the technical intricacies of a product. But they're not interested down to the bit and byte levels, so it's a tough balance to strike."

While users groups may not want "marketing hype," marketing people often want users groups. Woody Hume, Claris federal government account manager and until recently a federal marketing manager for Falcon Microsystems, said: "The government is a complex mechanism. You have to sell to the end users, to the people who set the standards and to the people who have the money. Users groups help me understand user needs. They provide an opportunity to meet people in an agency who are the Macintosh champions, who steer me in the right direction." □

Federal market *Continued from Page 36*

work; the Mac is good at LANs but still falls short with wide-area networks; networking management is cumbersome; electronic-mail standards are incompatible; and file incompatibility persists.

At the local government level, users are optimistic about Apple's ability to compete in the future. "In a couple of years," said Dave Anderson, who coordinates technology for the rapidly growing Southern California desert city of Lancaster, "Apple will be strongest for interoperability. It's the first company to make a specific goal out of being able to connect to all computers."

And despite Apple's relatively feeble penetration into the government market, company officials are hopeful. "Our sales have doubled each year for the past three years," Dunkelberger said. "We expect that trend to continue." □

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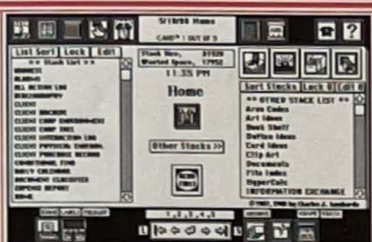
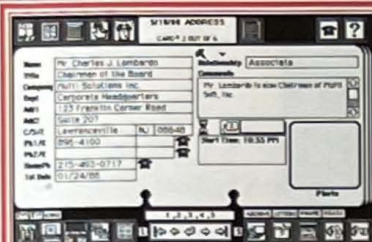
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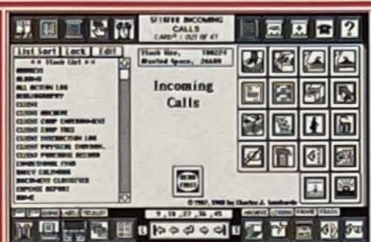
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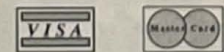
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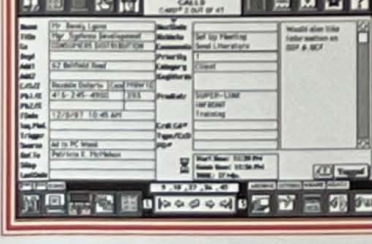
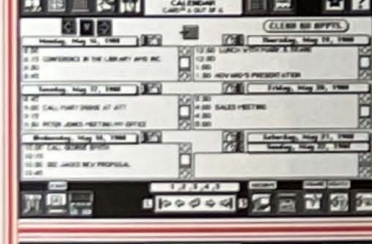
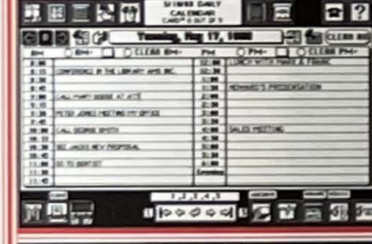
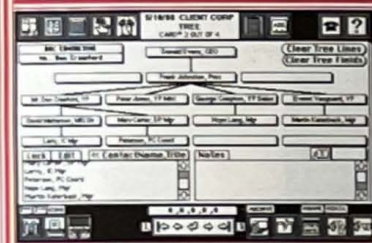
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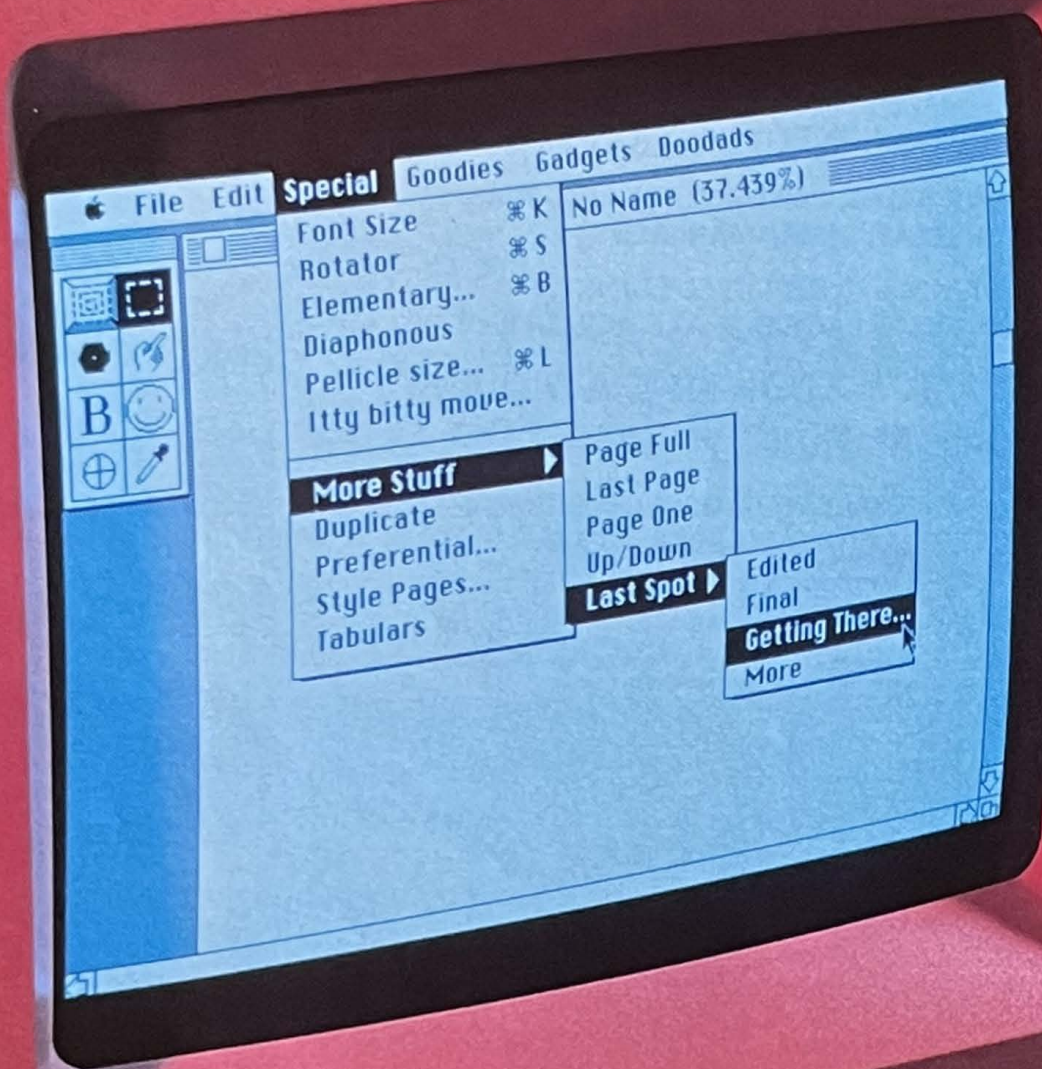
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If you answered yes to any of these questions, guess again. Few Command keys are used consistently in Macintosh software. And it's not just Command keys. Menu bars, dialog boxes, icons and toolboxes have become unpredictable, too.

This means learning to use a Macintosh program requires more training and support than should be necessary.

Time to change

Consistent interface design is one of the main reasons why the Mac became a bestseller. But with success has come a flood of new software. Programs offering innovations for the Mac interface. Some of the innovations are good; many have just complicated matters.

Hopefully, you'll never see a screen like the one at left. But the way things are going, your worst nightmare might soon be reality.

The Mac's interface consistency must be preserved. Applications with similar tools and functions shouldn't confuse users with inconsistent ways to accomplish the same task.

What can be done?

A lot. Participate in the first conference designed to propose Mac interface guidelines.

MacWEEK's ID89 conference will help define Mac interface solutions that work for everyone.

At ID89, you will hear experts talk about new trends in interface design. You will receive documented research on what works and what doesn't.

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The conference

ID89 will take place Tuesday, September 19, in San Francisco, preceding the Seybold Desktop Publishing Conference.

This one day conference will feature prominent speakers and interface design experts.

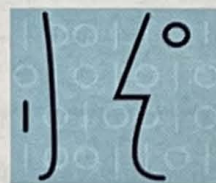
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Choosing computer systems to meet corporate growth

When small companies start climbing the ladder to success, an overtaxed computer system can hold them back.

By Steve Hannaford

Choosing the right combination of hardware and software is difficult enough in a relatively static business environment. But when you add the pressure of keeping up with explosive corporate growth, the difficulties multiply. The setup that was more than adequate yesterday may turn out to be utterly impossible tomorrow. Snack food company Smartfoods Inc. of Marlboro, Mass., found itself in just this situation.

Founded in 1985, Smartfoods has brought to market a single product, a premium cheddar cheese-flavor popcorn. Its claim is that unlike traditional "cheese" snack foods that burn the mouth and taste like orange chemicals, Smartfoods' natural cheese popcorn has both the taste and aftertaste of real cheese.

Consumers seem to agree. In the four years the company has been selling its popcorn, the product has caught on in New England. "In one year our sales went from \$3 million to \$12 million," said Bruce Berndt, Smartfoods corporate controller. "In fiscal 1988, we had a 45 percent to 50 percent share of the New England popped-popcorn market." In the midst of such spectacular growth, the company has been hard at work trying to make its computer capabilities keep pace with its corporate growth.

For Smartfoods, the critical computer application is an order-entry system that lets it track customer orders. This function, called central billing, is of great impor-

tance in the snack food industry because of an unusual two-tiered distribution system. While distribution for some chains, such as 7-11, Cumberland Farms and Stop & Shop Supermarket, is handled through major distributors, the invoicing for individual outlets is still the responsibility of the food vendor. The distributor handles only the actual warehousing and shipping.

When the distributor sends an order to the individual store, a delivery slip is sent back to Smartfoods. There, order-entry clerks take the slips and enter the data into a database program that sets prices and organizes the billing information. The problem for Smartfoods is that as business expanded, the number of individual orders per week skyrocketed, going from a few hundred a week several years ago to 4,000 to 6,000 per week today.

Because one of the founders was a Macintosh buff, the company had a few Macintosh 512Ks equipped with HyperDrives. The company started by developing a simple order-entry database capability using OverVUE, a flat-file database from ProVue. But OverVUE loads the whole database into memory, and Smartfoods' weekly database was getting so big that it was running out of memory. The other problem, according to Berndt, was that "we had a single-user system and we needed to go multi-user," something that OverVUE could not handle.

In the spring of 1987, the
See Growth, Page 46

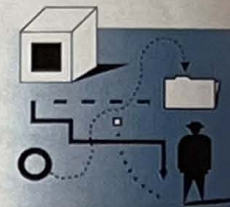
"Given the growth we had with this company, we knew that at some time soon we would have to go to a minicomputer."

— Bruce Berndt,
Smartfoods Inc.



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Digitalk, Bear River offer classes for Mac programmers

Macintosh programmers can hone their Mac skills with training programs offered by Digitalk Inc. of Los Angeles, developer of the Smalltalk/V object-oriented programming language, and the Bear River Institute of Berkeley, Calif.

Digitalk will offer courses in Smalltalk/V starting May 2 in Los Angeles and plans to offer such training at sites throughout the United States and Canada. The company also offers on-site training for Smalltalk/V users.

Bear River Institute, affiliated with software developer Bear River Associates, now offers 13 different courses in Mac programming. Course titles include Designing Software for the Macintosh: The Human Interface; Advanced Macintosh Programming; and An Overview of Unix for Macintosh Users. Courses for beginners and professionals are available. The institute also provides classes held at your place of business.

Digitalk Inc. is located at 9841 Airport Blvd., Los Angeles, Calif. 90045; (213) 645-1082. Bear River Institute Inc. can be reached at P.O. Box 1900, Berkeley, Calif. 94701; (415) 644-0555.

Finalists for SPA awards announced

The Software Publishers Association has announced the finalists for its 1988 SPA Excellence in Software awards. Among the Mac products in the finals are Fox Software's FoxBASE+/Mac 1.10 (Best Business Application: Numeric or Data Orientation); MacroMind's VideoWorks II (Best New Business Use of a Computer); and Adobe Illustrator 88 (Best of the Best).

The awards ceremony will be held May 23 in San Diego's Hotel del Coronado. SPA will also bestow the esteemed Fluegelman Award for the most significant new software product of 1988 and three journalism recognition awards at the event.

For more information, contact SPA at 1101 Connecticut Ave. N.W., Washington, D.C. 20036; (202) 452-1600.

The Macintosh Font Book released

Do you think New Baskerville is the mise en scène of a Sherlock Holmes novel? If the answer is yes, you need to know more about typography for the Macintosh. The Macintosh Font Book by Erfert Fenton may be just what you need.

The Macintosh Font Book is well worth its \$23.95 tag. The author uses simple examples throughout the attractively desktop-designed book, which progresses from basic type terminology to such esoterica as how to create a display character with a marble-pattern fill. Especially valuable is the appendix of vendors and service bureaus.

The Macintosh Font Book is available from Peachpit Press. The company is located at 1085 Keith Ave., Berkeley, Calif. 94708; (415) 527-8555.

Where Fortune 1,000 buy peripherals

A recent Gallup Poll asked microcomputer managers in Fortune 1,000 companies where they buy microcomputer peripherals. Citing corporate discounts, fast delivery and quality support, 45 percent said they favor the major computer chains. Independent dealers came in a distant second, with 19 percent.

Graphically speaking

Major chains 45%

Independent dealers 19%

Distributors 14%

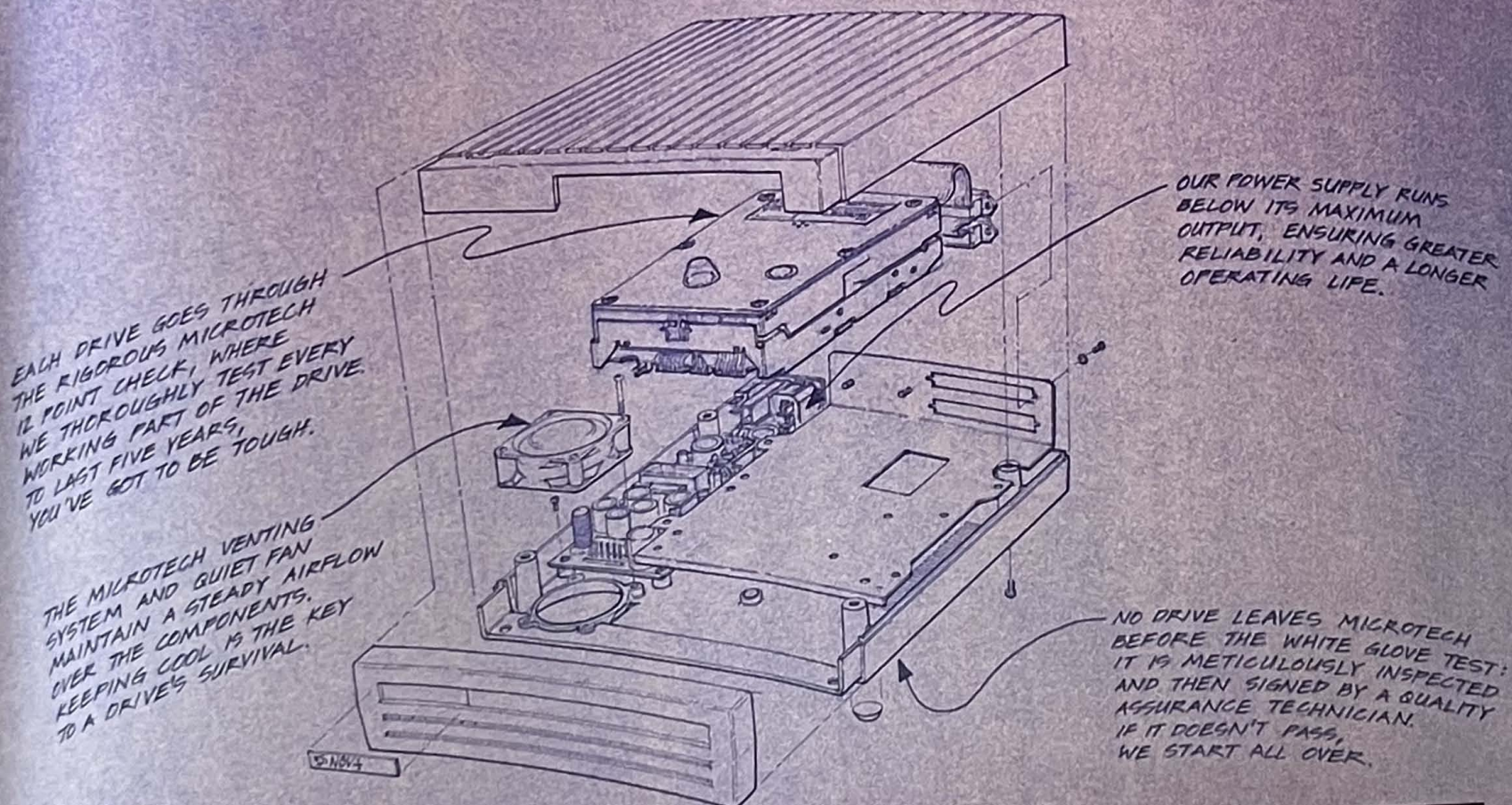
Direct sales by manufacturers 8%

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*7% didn't know, 3% said their primary source varies by product type. Source: The Gallup Organization

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Continued from Page 44

company looked around for a consultant. An Apple dealer recommended Rick Kollmeyer and his company, The Support Group of Wellesley, Mass. Kollmeyer's company combines training, database and consulting services exclusively on the Macintosh.

After reviewing the situation, Kollmeyer recommended Omnis 3 as a solution for Smartfoods' database needs. "The real problems that we were trying to solve were basically volume and multi-user capability," said Kollmeyer. "One of the reasons for going with Omnis was [Smartfoods] needed something that was very fast. It wanted to blast in a lot of transactions quickly, and Omnis is good at that." Omnis also easily supports multiple users.

Once hired, Kollmeyer's first problem was to learn the order-entry system. "I had to meet with them and learn everything about snack food order processing. That was probably the toughest part," he said. "It's tricky — the way you send the product in one direction and the bill in the other." The other difficult issue was pricing. "[Smartfoods is] always doing specials for one or more of the distributors, and all the specials have time constraints. There might be two or more specials running at any one time. It had to be automatically determined what price list would be used when. Each individual distributor can have its own deal," he said. So the program had to be discerning enough to see the delivery date and set the rates.

Good report generation was a

priority. Each week Smartfoods prints out distributor reports of the week's orders. The reports run as long as 600 pages per week. According to Kollmeyer, "They are now able to produce reports for management that they were just unable to get out before. They can compare a time period this year with one last year, for example. They can get reports by sales representative, by region and by store type."

As Berndt put it, "It's an important tool for our regional sales managers to see how the stores in their region are performing."

In addition, Kollmeyer had Smartfoods order new equipment. The company moved its Mac 512Ks to other divisions and replaced them with SEs for order entry. It also set up an AppleTalk network using PhoneNet hardware and an SE running AppleShare for the file server.

While the initial installation solved major difficulties, new growth-based problems eventually cropped up. Smartfoods hired more order-entry people, and the AppleTalk network bogged down. As a result, the five entry clerks couldn't get enough orders through the network and had to spend time waiting for the server to free up.

"What we did about eight months ago is upgrade the server and a number of their users to Ethernet," said Kollmeyer. The file server, upgraded to a Mac II, has two hard disks, one for order entry (a 140-Mbyte Rodime drive), the other one for word processing and other office functions. "We use an

Apple tape backup now," said Kollmeyer, "which doesn't cut it. It's extremely slow. I'm trying to get them a removable-cartridge tape drive."

The company used Kinetics FastPath on the server and Kinetics boards in the SEs to connect to Ethernet. According to Kollmeyer, changing to Ethernet took one day. The network upgrade went without a hitch. Fortunately, most of the Ethernet-linked Macs were in the same room, so the company did not have to lay extensive cabling. "From the user point of view, it all works exactly as it worked before, except that it's faster," Kollmeyer said.

But nothing, apparently, is completely trouble-free. The interaction of Ethernet with Omnis causes some bombs because, according to Kollmeyer, "the additional overhead of the Ethernet drivers seems to conflict with Omnis' memory requirements." He said he is trying to persuade Smartfoods to get memory upgrades for all the SEs to avoid this problem.

Despite the crashes, the database has remained solid. Kollmeyer said Omnis "handles the bombs very well. Basically, we have not lost any data." The crashes have been more of an inconvenience than a disaster.

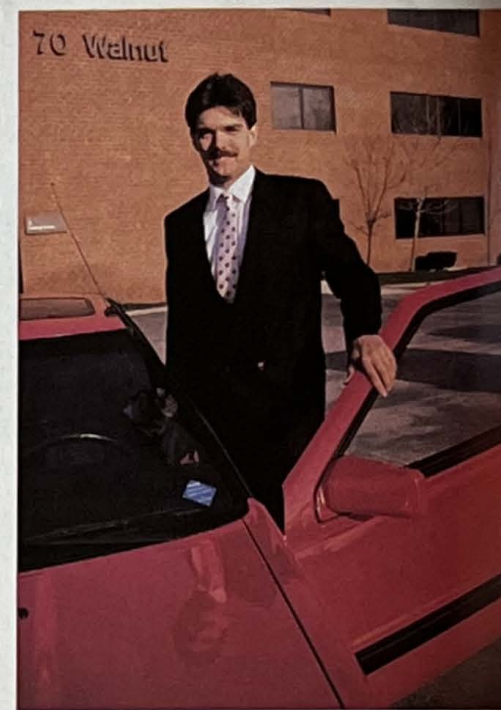
As with most complex and time-critical applications, every system or software upgrade also threatens the network. "Sometimes we have a system upgrade and the next day everyone complains about problems. The question is, is it the new system that is causing the prob-

lems, or Omnis 3, and is Blyth coming out with an update to make the database compatible? Occasionally the problems are dramatic, but usually it's not too bad," Kollmeyer said.

Another continuing annoyance has been the accounting system. The actual invoicing is done with Insight from Layered Software. "Once a week we run a report from the database, then go into the receivables and do the billing," Berndt said. The company must manually enter the data from the database system into Insight because there is no way to directly import data. "You can't import data into any of these accounting packages," said Kollmeyer. "On the other hand, you can't use Insight to do the complicated central billing procedures."

Even if it were possible to develop such an import capability, Berndt is not sure that Smartfoods would want to pay the price for it. "Given the growth we had with this company, we knew that at some time soon we would have to go to a minicomputer."

Berndt said that he believes the company has reached the end of



RIK FRIEDMAN/BLACK STAR

"The real problems that we were trying to solve were volume and multi-user capability."
— Rick Kollmeyer,
The Support Group

the line with Macintosh accounting systems and will have to look at high-capacity systems based on computers from Digital Equipment Corp. or IBM.

Kollmeyer is of the opinion that the company still has a while to go with Omnis and the Macintosh. Given memory upgrades, accelerators, faster printers and more tweaking on the application, he is confident that Omnis 3 could continue to serve Smartfoods.

But questions about the future course of Smartfoods' computer system have become moot. Snack food giant Frito-Lay recently bought the company, making it a wholly owned subsidiary. Smartfoods is now turning over its central billing to the new parent company, which has an IBM mainframe that handles order entry for the whole country. According to Berndt, Smartfoods will, however, maintain its own manufacturing, sales and marketing capabilities.

While the distribution application will be phased out, Smartfoods is planning other uses for its Macs. "By relieving us of the burden of billing," said Berndt, "it will allow us to distribute Macintoshes to the marketing, quality control and personnel departments. The company will stay with the Apple machines. They are very easy to use and very easy to adapt to things, even for non-programmers." □

Steve Hannaford is a free-lance writer based in Swarthmore, Pa.

The Mac Manager

Mac training: There's more than one way to learn

How do people learn a new Mac program?

Is it by reading the manual or working through tutorials? Do they watch training videotapes, attend class or get help from a colleague? Or do they simply load up the software and start exploring?

The answer is all of the above — and none of the above. For many people, learning a new Macintosh program is a multilevel process that requires lots of varied training material and support.

If you're a manager responsible for training, you've probably discovered that the quality of some training materials, especially for sophisticated programs, falls far below acceptable levels. That's because the old "easy-to-use" Macintosh mystique has prevented many people, including those at software publishers, from giving adequate consideration to training.

You can still pick up many Mac programs and find major deficiencies in their printed manuals, on-line help, tutorial samples and overall orientation to the new cus-

tomers. As a result, plenty of Mac software remains unused in offices across the country.

The problem is that many training programs don't deal with the

fact that adults learn to use software in different ways. Moreover, many such programs don't recognize that different levels of an application's use imply different learning problems.



BY DON CRABB

I've found when training students in the use of some new, complicated application that they must be actively engaged in the program being learned. The materials usually take a tutorial approach, providing examples that students can work through at their own pace. This means that they can see what their actions will result in as well as the reasons behind the result.

A quality training program offers

multiple training media because the more kinds of learning environments it provides, the greater likelihood that one will click with a given person.

For example, a training program might include a HyperCard stack that simulates the application to be learned and allows a student to pick apart its actions. It could come with a set of introductory written tutorial problems that rely on the program for their solution. There might be a video that shows the application being used by an expert and gives an overview of its capabilities. Other useful items might be a reference manual that works with the other training materials, on-line help and a real textbook that pulls together the training process.

Where can you find such materials? A few third-party training companies provide high-quality multimedia training, but the cost per student is high.

One alternative to buying third-party materials is dealing with those software publishers that

now include high-quality training materials with every program they ship. A good example of this is Claris, with its emphasis on HyperCard-based Help stacks and tutorials.

According to Jay Hanson, Claris' manager of technical support, "It's the front-end support — the documentation, the on-line help and the tutorials — that have to be good. You can't make up for bad front-end support with lots of phone lines and [support] techs."

Claris practices what it preaches. In addition to its manuals, stacks and tutorials, every Claris product comes with a support services booklet that lists the telephone numbers and hours of Claris' support lines. There's also a monthly newsletter with hints and tips for registered owners.

More vendors should follow Claris' lead. Unfortunately, a large number of Macintosh programs still suffer from poor tutorials and mediocre manuals, reminding us that training is still an afterthought to many publishers.

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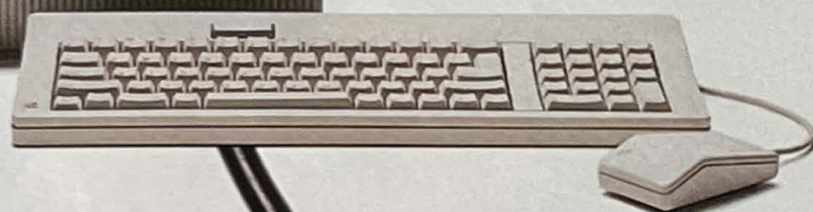
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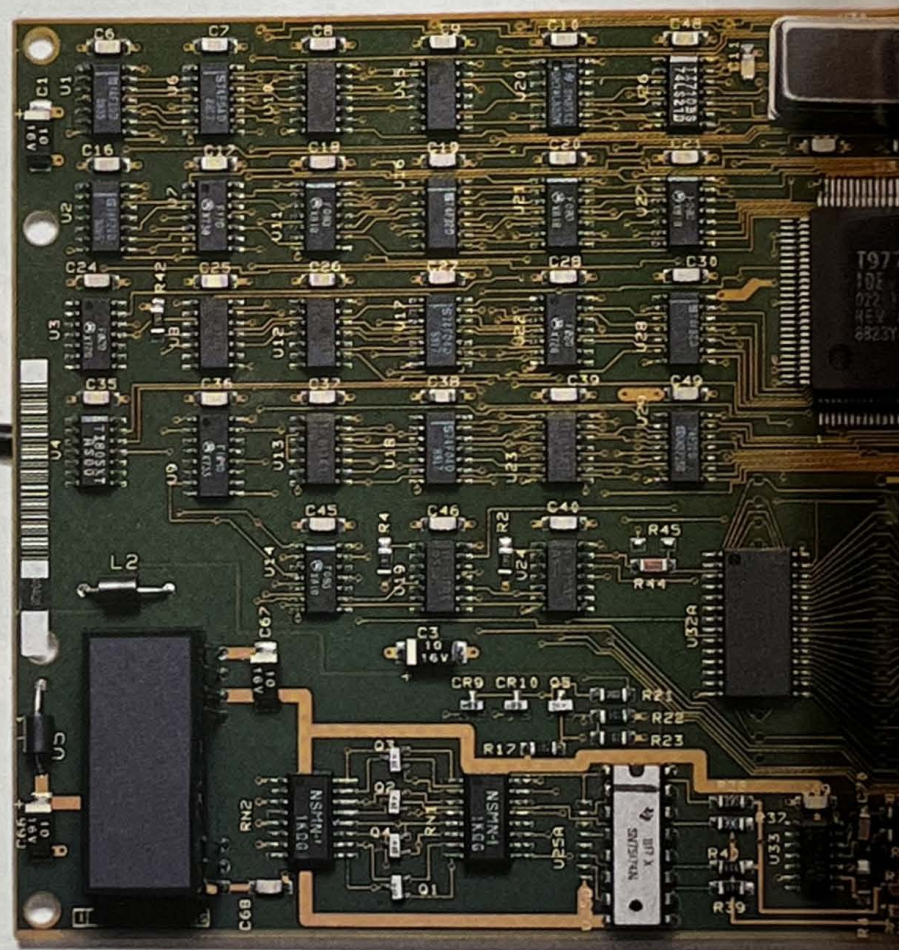
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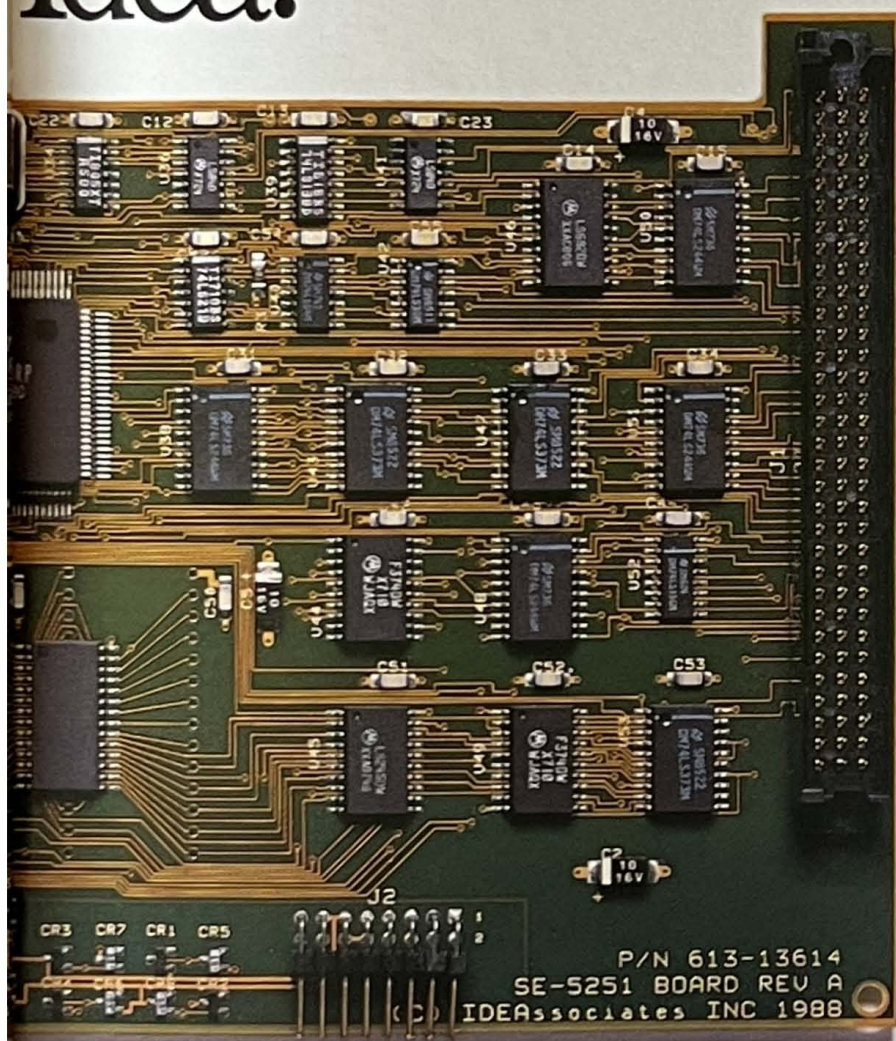
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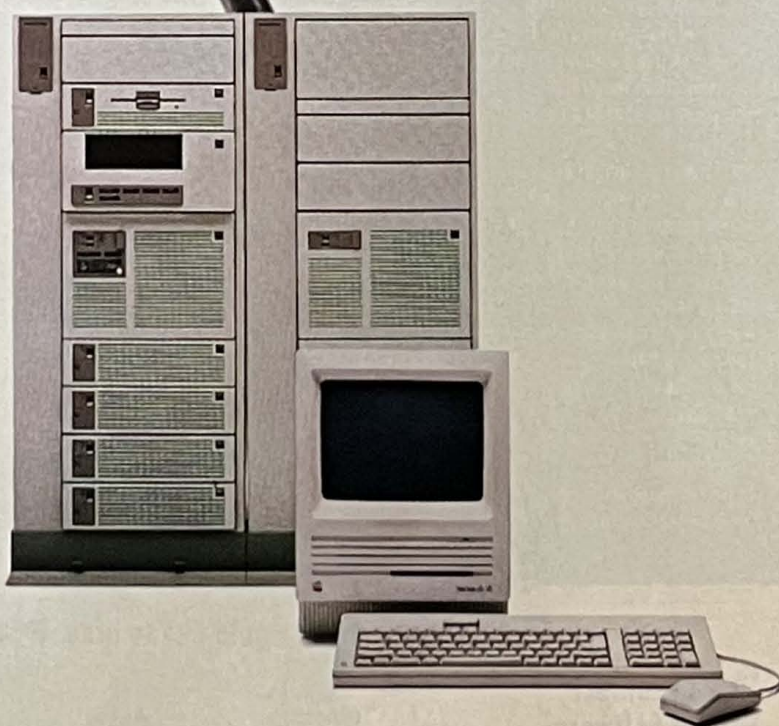
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Number of Color Bitmaps per card	0	Unlimited
Color animation	No	Yes
Color Palettes	No	Yes
Number of bit resolutions	1	4
Color Object Graphics	No	Yes
Scripts for Color Object Graphics	No	Yes
LaserWriter Resolution	No	Yes
Pict/Pict2 Import into Graphic Objects	No	Yes
Irregular shaped buttons	No	Yes
Color Buttons	No	Yes
Wordprocessing fields	No	Yes
Color Text fields	No	Yes
Several fonts per text field	No	Yes
Import of textfiles into fields	No	Yes
Formatted input with input checking	No	Yes
Real HyperText features	No	Yes
Maximum number of objects	125	Unlimited
Maximum card height in pixel	342	32000
Maximum card width in pixel	512	32000
Card size modifiable	No	Yes
Number of window types	1	6
Scrollbars, Size box and Zoom box	No	Yes
Library stacks	No	Yes
Number of Scripts editable at a time	1	Several
Full page printing	No	Yes
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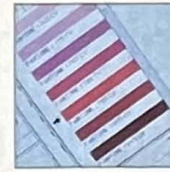
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Mixed Media

Tracking the Daily News; designers like Apple's big monitors; high-end color with Aldus OPI, Page 53



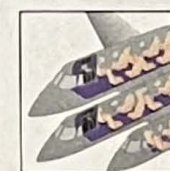
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Profile

Mac allows time for good design, Page 80



End Paper

Ezra Shapiro: The devil's (desktop publishing) dictionary, Part II, Page 84

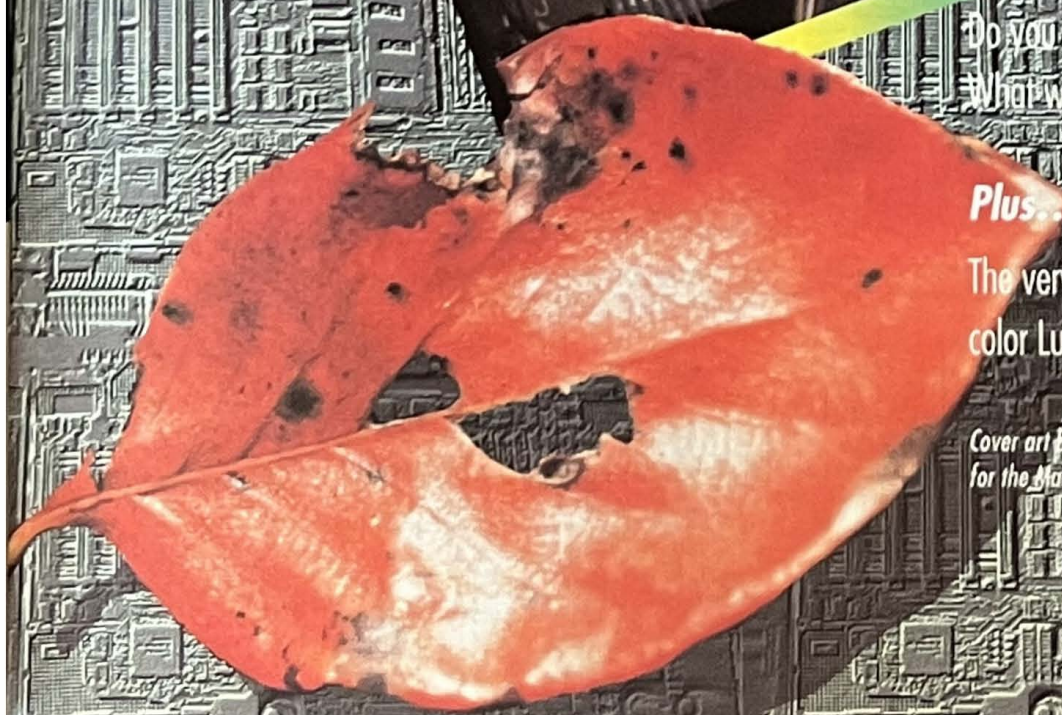
32-bit color!

How does it work?
Do you need it?
What will it cost you? Page 56

Plus...

The very first look at 32-bit color Lumina, Page 62

Cover art by Linda Mesuram in Lumina for the Mac from Time Arts Inc.



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Daily News on track with ODMS

By Mitzi Waltz

New York — Next year the New York Daily News will leave behind a meticulous trail of electronic documentation as it rolls off the presses. The tabloid recently signed a contract with Northbrook, Ill.-based Odesta Corp. to license its Odesta Document Management System (ODMS) for document and work-flow management. It is installing a complex network that includes a MicroVax server, Mac and IBM workstations and linkups to the corporate IBM mainframe.

Based on Odesta's Helix relational database technology, ODMS will track the elements that make up the paper — page layouts, graphics, stories, ads and headlines — from the time they come in the door to the moment the ink hits the newsprint.

Page dummies will be designed with Layout 8000 from Software Consulting Services of Nazareth, Pa., and imported into Denver-based Quark Inc.'s QuarkXPress. Ads will be created with DTI's Display Ad Builder program and then brought onto the page as Encapsulated PostScript (EPS) files through Layout 8000. An Atex text-editing system will complete the publishing setup.

Once a document is entered into the system, ODMS will automatically append the names of those working on it along with other important information. As a result, project supervision can be done



Mike Pearson (left), director of the Daily News' technical operations, and Jean Leonard, city desk project manager, are leaping into electronic publishing from a manual system to track page elements.

from the desktop. "You get a bird's eye view of what everyone is doing," said Stuart Cooke of Odesta's marketing department. "It's the only [Mac program] we're aware of that does this as transparently."

The system will mean big changes for the Daily News' staff. "It's a completely manual operation right now," said Mike Pearson, director of technical operations. "With a manual system you have this entire hierarchy of relationships that ensures that things get done." The electronic system will change those relationships.

Keeping a handle on operations at the Daily News is no easy task, Pearson added. The daily prints three major editions, each with several "zoned sections" keyed to specific areas of New York.

The Daily News is already using Macs in its art department to create graphics with Claris' MacDraw and Adobe's Illustrator 88.

The paper and Odesta will also work together to create a production management system and a custom legal database.

Odesta Corp. can be reached at (312) 498-5615. □

Open Pre-press Interface lets systems import color images

Pre-press vendors endorse Aldus' OPI

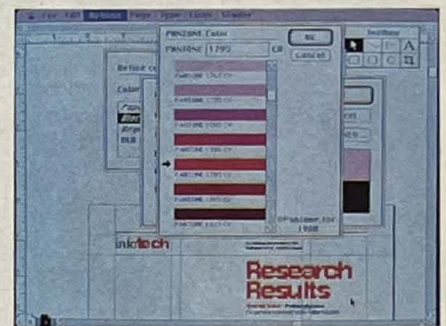
By Robert Virkus

Desktop publishers will have new links to high-end color pre-press systems if the Open Pre-press Interface proposed by Aldus Corp. becomes an industry standard. A set of PostScript-language comments, OPI allows pre-press systems to electronically incorporate high-resolution color images into desktop-produced publications. So far, OPI has been endorsed by such pre-press vendors as Crosfield, Diadem, Dainippon Screen (DS America) and PrePress Technologies.

Aldus proposed OPI at Seybold Seminars '89 while simultaneously announcing its PageMaker Color Extension. With the PageMaker Color Extension package, users can color text and PageMaker-drawn graphics or import color illustrations saved as Encapsulated PostScript (EPS) files. PageMaker Color Extension offers four options for output: color printers, black-and-white laser printers, PostScript-language imagesetters and high-end pre-press systems that

produce four-color separations of documents containing tag image file format (TIFF) images through separation software and OPI.

"OPI brings control to the user and reduces the costly re-work done by color pre-press houses to size, crop and position photographs," said Paul Brainerd, president of Aldus. "We rely on the color houses to add value in scanning and [in] color adjusting the photograph to the highest level it can be."



PageMaker Color Extension users can import color illustrations saved as Encapsulated PostScript files.

Crosfield adopted the standard, although it already has a direct link between its system and Letraset's Ready,Set,Go! page-layout software.

"We are eager to promote the idea of open and free interchange between the high end and desktop machines," said David Parker, director of product marketing at Crosfield. "We believe that desktop systems have an important role to play in pre-press. They add value to our system because you can have three or four seats in front of our machine, generating page geometry, which is fairly expensive, and let our machine do what it's best at: high-resolution image manipulation."

With OPI, the pre-press customer takes original photographs to a color pre-press vendor, who creates a high-resolution version and a low-resolution TIFF version of each scanned image.

The pre-press customer places the TIFF files into the publication, using the page-layout program's tools to size and crop the images as necessary. The pre-press system reads the PostScript file for the OPI image comments, lists the file names of the scanned images and records the accompanying sizing, positioning and cropping information. The system then uses the OPI comments to locate the TIFF files and electronically strip the high-resolution image into the publication.

OPI is a set of PostScript comments that could be easily adopted by any program or system. But as Parker said, "With Mac software evolving as fast as it is, today's leader may not be tomorrow's. As a pre-press system vendor, we want to be able to take in any page from any desktop publishing package." □

Monitors meet with designers' approval

By John Battelle

Cupertino, Calif. — Apple's new large-screen gray-scale monitors have caused some borders to be redrawn in the display arena, but when the dust settles the real winner will be end users, who will benefit from an expanded and more competitive market.

Designers, publishers and other graphics professionals who have seen Apple's new Portrait Display and Two-Page Monochrome Monitor give them a thumbs up for design and ergonomics, but mixed reviews on high-end capabilities and price.

The Apple Portrait Display, a 15-inch single-page monitor configurable up to 16 levels of gray, will ship in May for \$1,099. The 21-inch Apple Two-Page Monochrome Monitor also configurable to 16 levels of gray, is available now for \$2,149. Video cards for each cost \$599, and expansion to 16 levels of gray costs \$149.

"They are sharp and crisp, the design is slick, but I'd like to be able to upgrade to 256 gray scales," said John Widmer of Widmer and Associates in



Designers have given a thumbs up to Apple's new large monochrome monitors, the 15-inch single-page Apple Portrait Display and the 21-inch Two-Page Monochrome Monitor.

San Francisco. Widmer also expressed reservations about the price and the 90-day Apple warranty. Apple has said that it doesn't plan to offer 256 gray-scale cards, but third parties could provide that capability.

In reaction to Apple's introduction, market leader Radius, maker of the Full Page and Two Page displays, recently dropped its dis-

play prices to \$2,190 for the Two Page Display and \$1,490 for the Full Page Display. Both prices include video cards.

"The standard monitor for the Macintosh II line will be a full-page display," said James Cavuoto, editor of microPublishing Report in Torrance, Calif. "I'd be happy if I were a full-page display vendor." Designers seem happy with

Apple's new offering as well. "I definitely want one," said Clement Mok, principal at Clement Mok Design in San Francisco. "Part of it is the Apple label; it goes well with the machine," Mok said. "Two hundred and fifty-six grays might be overkill for what we would do on a Portrait [Display]. You'd want a color monitor" for high-end work.

Apple is leaving the high end to third parties and taking the entry level for itself, providing a 16 gray-scale solution for scanning, printing (the 300-dpi LaserWriter is capable of supporting close to 16 gray scales) and now display, said industry analysts and sources at Apple.

"A lot of graphic design houses are still using service bureaus [for high-end work]," said Lauren Sarno, senior analyst for Watzman and Keyes, a design and communications firm in Cambridge, Mass.

"It's still cost-efficient to cost out those jobs," Sarno said.

Sarno said the overall reaction to Apple's new displays at her firm was positive. "Apple seems to be considering the user with this product." □

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Apple sets the standard with 32-bit color QuickDraw

By Steve Hannaford

Apple's new 32-bit QuickDraw is inspiring 32-bit boards and applications from third-party vendors — but do you really need it?

At the 10th annual National Computer Graphics Conference in Philadelphia on April 17-20 Apple announced the availability of a Macintosh System software upgrade that would provide a long-awaited feature, 32-bit color. This new capability incorporates 24 bits of color information and, in a key development, an additional eight bits of information in an "alpha" channel.

While 32-bit color will not offer a breadth or depth of color display different from the 24-bit display of 16.7 million colors, the added eight bits will offer extra visual display effects. Additionally, Apple's new standard uses the "full chunky" 24-bit color standard instead of the "chunky planar" standard previously used by RasterOps (see sidebar, "What 32 bits'll get you," Page 58).

Hardware manufacturers and software companies are busy preparing a substantial number of devices and applications to take advantage of this new standard. However, controversy exists, and probably will for some time, over the function and use of the alpha channel, the most significant element in this new architecture.

Benefits. In limited ways, the benefits of 24-bit color have been available for some time. Truevision's Targa boards for the PC and

recent 24-bit boards from RasterOps have made it possible for serious color users to get beyond the 256-color restriction of the current eight-bit Apple technology, giving them access to 16.7 million colors. There's even been software written for the boards, but that was done at a risk. Because no standard had been defined, any and all early attempts were likely to conflict with whatever standard Apple created. Now that Apple has announced its standard, those fears have proven to be justified, since the file storage format for color QuickDraw files has been altered from PICT2 to an as-yet-unnamed upgrade.

Regardless, the increased color capability of 32-bit QuickDraw will have an immediate impact in several areas. As desktop color scanners and frame grabbers are increasingly able to bring in 24-bit color images, eight-bit color will seem ever more inadequate.

New York graphic artist Pepe Moreno has worked for a long time with eight-bit color, but he is testing and experimenting with as much of the 24- and 32-bit software and hardware as he can get his hands on. For a major book project he is currently working on, "we do the rough work in eight bits because of its speed (up to four times faster than current 24-bit technology). But we need 24 bits to do justice to the realistic, photo-quality color we need."

Other applications that will benefit from 24-bit color displays are full-color photo editing and retouching, high-definition medical and scientific imaging and even reduplication of standard National Television Standards Committee (NTSC) color TV transmissions to allow for videotape editing.

Twenty-four or 32, what's the difference? With either 24- or 32-bit color, only 24 bits of color information are going to be displayed on screen. The "alpha" information is not displayed for several reasons.

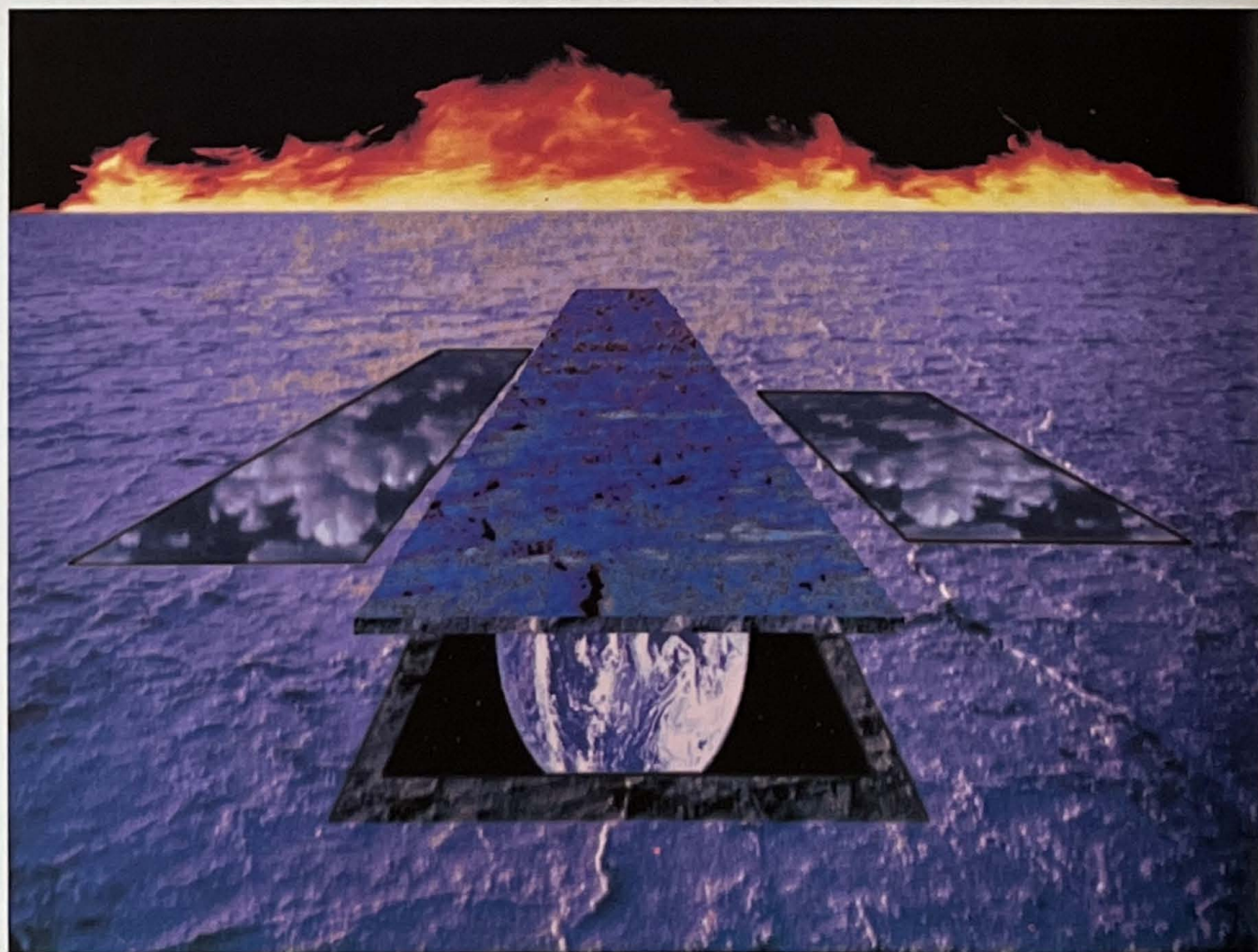
First, current display technology makes the 24-bit display reasonable and economical. Current monitors allow for a red, green and blue display channel, and eight bits (or 256 levels) dedicated to each one of these three color channels is a logical use of 24 bits. As Andrew Singer, vice president of engineering at Radius, said, "On a [32-bit] display board, where all this information is going to end up, only 24 bits of color are going to be used. The other eight bits are not of direct significance to the display." Indeed, the more than 16 million different colors that can be created with 24 bits is well above the threshold of the most sensitive human vision.

Second, the eight-bit alpha channel will be available for added visual effects as each

Continued on Page 58



(Above, top) The RasterOps ColorBoard 224 supports 32-bit color and the 19-inch Trinitron monitor. (Above, middle) Two photographs were scanned using the Barneyscan color slide scanner, which produces 24-bit image files. The photographs of flames and a cracked plain were combined using the 24-bit photo-retouching program PhotoMac. (Above, bottom) Black trapezoids were created using MacDraw and pasted onto the image. Clouds were from another photo. (Right) A floating plain and the earth were added to the final image, which was output on a Mirus slide writer and conventionally separated. All photography and retouching was done by Eric Meola.



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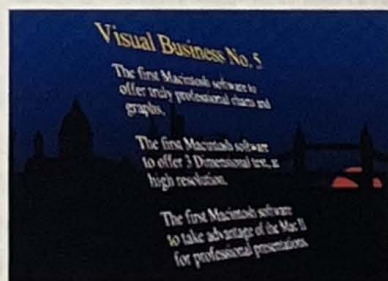
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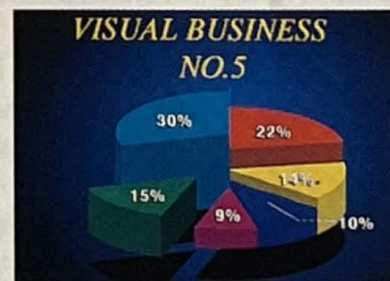
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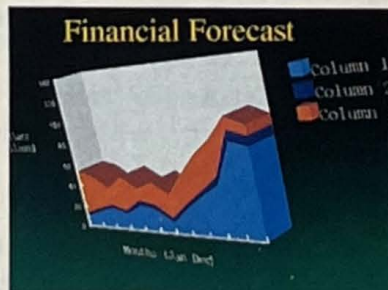
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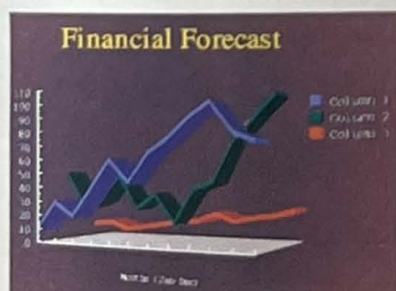
2D Graph & Shading



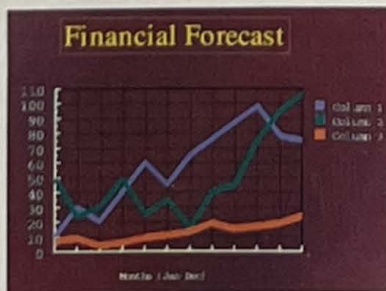
3D Solid Rotated



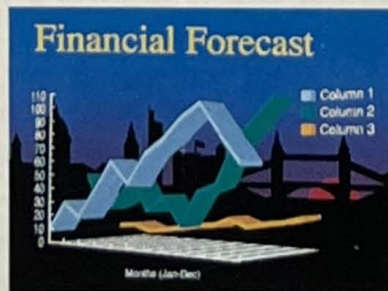
2D Graph with 3D Look



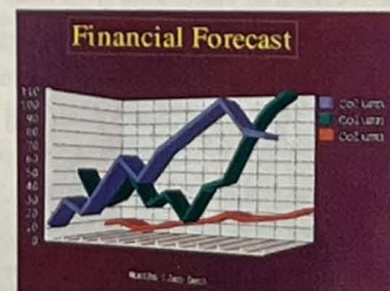
3D with Artwork



2D with Grid



3D with Artwork



3D Boxed and Rotated

Continued from Page 56

developer sees fit, such as overlaying text for special video effects, animation (having an eight-bit character layer, say, moving over a 24-bit scene layer), gamma correction (correction information for scanner or video input) or 3-D modeling data (remembering what the other sides of an object "look" like).

An obvious use of the alpha channel, according to Singer, is taking two 24-bit images and specifying their transparency relative to each other.

This is just the approach being taken by Letraset, which displayed its Color Studio program at Seybold Seminars '89 in March. Color Studio uses the alpha channel for defining levels of transparency for masking. In other words, in Color Studio it's possible to set 256 levels of transparency for an image or an area so that when it's placed over another image a defined quantity of the other image shows through.

Letraset may be the first to show off a 32-bit application, but Dennis Collins, marketing communications manager of Truevision (which has re-released its NuVista boards for the Mac to conform with the new standard), anticipates that many more will follow. He said he has seen "a lot of interest from high-end application developers who have created

programs using the Targa boards." Collins said that he anticipates a range of applications for 32-bit color as varied as the Targa-based applications now available for the PC.

The problems to date. One aspect of 32-bit color on the Mac that worries vendors is that the Apple standard does not specify exactly what information should or must be present in the alpha channel. Despite their interest, some vendors are taking a wait-and-see attitude toward the use of color beyond eight bits in the Mac.

An engineer at PrePress Technologies said, "Apple hasn't given any direction about those upper eight bits (the alpha channel). You have to be careful with what you do up there, because they eventually may or may not use those bits."

At press time, RasterOps planned to ship on April 24 its ColorBoard 232 and its ColorBoard 224, both of which support the Apple standard. But even RasterOps is hedging its bets on which way the market will go in the near future, according to marketing specialist Richard James. "We're looking right now to see what the market wants to do, whether 32-bit or 24-bit will dominate," he said. "We have a fairly large installed base of 24-bit boards and we are going to introduce some

acceleration software for the 24-bit board, which will make it faster than the 32-bit method. But if people want to go with applications written for the new standard, they will go with the new standard."

While the alpha channel can clearly be implemented in software, a question arises about how the board handles extended data. This is an interesting problem, with no definite answer. Some hardware companies are providing a de facto 24-bit board that will handle the new file format and ignore the extra eight bits, making the assumption that the data will be handled in software. As Keith McGregor, a color specialist at Apple and one of the originators of PixelPaint, noted, "Some 32-board vendors are not providing RAM space for the alpha channel. They are ignoring it." They are, in fact, releasing 24-bit boards that handle the new color standard, but not the alpha channel.

Another factor that may slow the adoption of 32-bit color is that some current peripherals may not be up to the task of handling full 24-bit color. According to Rudy Burger, president of Avalon Development Corp., maker of the 24-bit photo retouching package Photo-Mac, "In the eight-bit world, it's less of an issue getting good quality images in and out again. You can't see the defects in image quality that clearly. Once you are in 24-bit mode, the defects in your input (for instance, errors created by slide scanners) and on your output are much more noticeable."

In addition, 32-bit boards may not prove to be economical. As Burger said, "We are not going to drop the eight-bit support from our product line, because it seems unlikely to me that all the people who are currently using our eight-bit product are going to step out and suddenly use a 24- or 32-bit board. Even if you were given a 32-bit board for free, it would be expensive to use it. All of a sudden you have to buy a \$3,000 monitor, extra RAM, lots of disk storage space and an accelerator board. And 32-bit color files are going to be four times as large as eight-bit color files for the same content. If you think the eight-bit color files are awkward to handle, wait until you see the monsters that can be produced using 32-bit color."

MacroMind's Marc Canter is similarly cautious. "Our specialty [with VideoWorks II] is real-time animation. You can't do real-time animation in 24 or 32 bits (see sidebar on 16-bit boards, this page). For me, 32-bit color will become a reality when in conjunction with 32 bits we can have frame-for-frame control, allowing us to interface with video decks or film recorders." Canter said he sees that development emerging next year.

Although acceptance of the new standard may be gradual, its eventual predominance seems inevitable. As Singer said, "All the new applications will be written for the new QuickDraw enhancements, and people will gradually drop the old format."

The bottom line is that those users with current RasterOps 24-bit color boards eventually are going to have to replace them once new applications come on-line. RasterOps has announced that it will give a "generous rebate" for current and future users seeking the upgrade. And the handful of current applications supporting these boards at 24-bit resolution will inevitably be upgraded to support the new file formats. The upshot is that new true color applications will not run on the old 24-bit boards, but the vast majority of users need not worry, as most current eight-bit color applications should work fine within the new standards. □

Steve Hannaford writes frequently for MacWEEK and is a contributing editor of Verbum.

Sixteen bits — the untold story

One important offshoot of the new color standards may be 16-bit color. Five bits apiece of red, green and blue information (with one bit unused) provides more than 32,000 colors instead of 256. Sixteen-bit files are smaller and easier to handle than 32-bit files and may be sufficient in quality for all but the most exacting color work. As Radius' Andrew Singer said, "A picture rendered in 16-bit color takes up half the space of a 32-bit picture. And if you look at scanned photos in 16- and 24- [or] 32-bit color, most people have a hard time distinguishing among them." Speed is also a factor in favor of 16-bit color.

The only 16-bit card on the market to date

See *Sixteen bits*, Page 66

What 32 bits will get you

The final beta version of Apple's 32-bit "true color" QuickDraw routines has made the rounds to developers and was released last week at the National Computer Graphics Association show.

Code-named Jackson Pollock, Apple's new QuickDraw is an INIT (Startup document) that has been beta tested for more than six months. The software is designed to work in conjunction with third-party color hardware and a new version of Apple's System software to offer the user photographic-quality screen images using as many as 16.7 million colors. Also called "24-bit color," this implementation uses 24 bits of video memory to represent the color of each pixel. "Thirty-two-bit color" refers to a system that uses the same 24 bits of information for color representation, plus an extra eight-bit "alpha" channel for additional information.

The current version of QuickDraw supports 256 on-screen colors using eight bits of color information per pixel. While the user is able to pick 256 colors out of an available palette of 16.7 million, only 256 colors may be displayed at one time.

RasterOps of Cupertino, Calif., has engineered a way to get around the eight-bit limit. Using a method informally called "chunky planar," the RasterOps 24-bit board accesses all 16.7 million colors. It colors the Mac screen in three passes, once each for red, green and blue.

Apple's new color QuickDraw, however, uses a "full chunky" 24-bit color standard that holds all the color information in one 32-bit "word," and

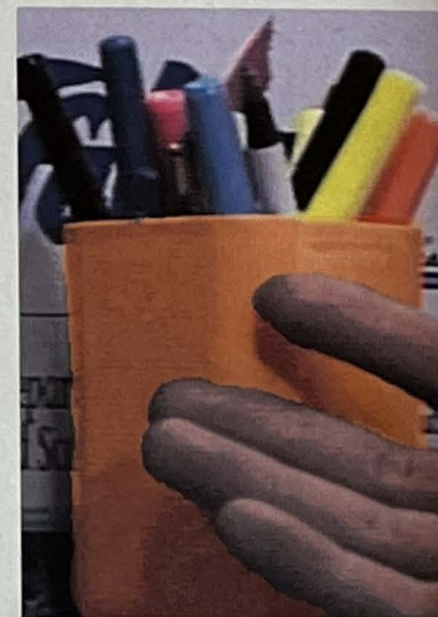
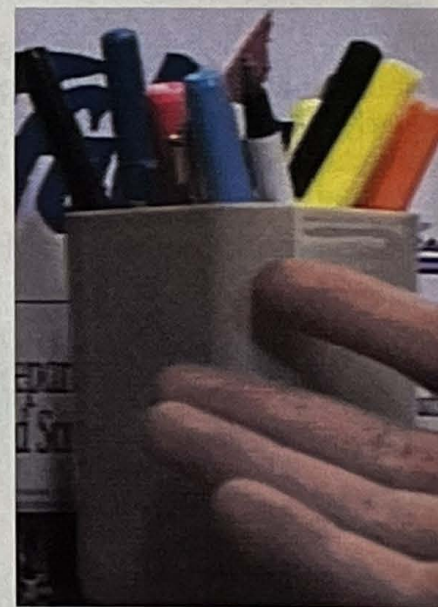
the screen is drawn in one pass. While 24 of the bits are dedicated to representing color information, the remaining eight bits are left over and can be used as an "alpha channel" for special video effects or for other as-yet-undetermined applications.

Because this full chunky approach uses a 32-bit-wide data path, it will not run on the Mac SE, Plus or 512K, all of which use the 16-bit 68000 processor. The processor must be capable of moving data in chunks larger than 16 bits. As a result, Jackson Pollock will run only on the Mac II's 32-bit 68020 processor or on the 32-bit 68030 processor used in the SE/30, IIx and IIcx.

Jackson Pollock also requires more video memory to handle the increased number of colors. A video card offering 24-bit full chunky color at a resolution of 1,024 by 768 needs to have more than 2 Mbytes of video memory. (In fact, 5 Mbytes is often recommended.) And since such a setup has about 780,000 pixels and the the number of on-screen colors is limited to one color per pixel, a maximum of 780,000 colors will be available on screen at the same time.

The new QuickDraw is designed to be transparent to the user, and, according to sources close to Apple, after the long beta test period, all applications that have been written to conform to Apple's developer guidelines should run under Jackson Pollock. — By Peter Johnson

For further information, see GA, October 1988.



Both images were captured with the DataTranslation 16-bit ColorCapture board. Colors in the bottom image were retouched using PhotoMac.

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Lumena's light shines on the Mac horizon

By Connie Guglielmo

Lumena has created a niche for itself in the IBM PC world. Will its Mac counterpart, when released, inspire a similar band of loyal Mac users?

For the past seven years, Lumena has been hailed as one of the most powerful paint programs for the IBM PC. Now its creator, Time Arts Inc. of Santa Rosa, Calif., is hoping to repeat that success in the Mac graphic arts community with a Mac II version of Lumena slated for release in the third quarter of this year.

Lumena's powerful features have attracted more than 11,000 graphics arts users on the IBM PC. "It is unquestionably the most powerful paint program available on a microcomputer," said David Krauss, president of Western Imaging, a graphic production shop in Mountain View, Calif., and owner of a copy of Lumena with the serial number 1.

Lumena for the Mac is as yet unpriced. According to Laura Malone, director of marketing at Time Arts, its price will not exceed the \$2,500 price of the 32-bit PC version, and it will contain more than 250 painting, drawing and image-editing tools, 20 special-effects modes and some features unavailable on any other desktop paint pro-

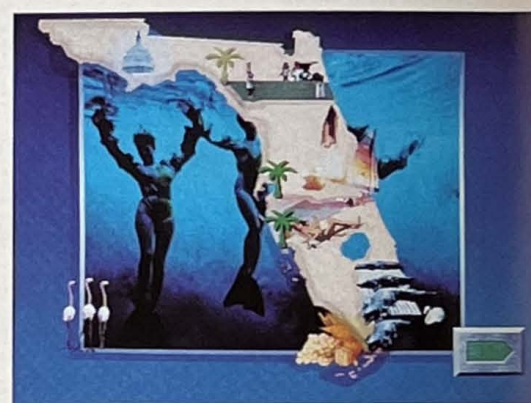
gram (see related story, this page).

When used with a 32-bit color board, Lumena can generate a palette of 16.7 million colors. Users can create their own custom color palettes or choose one of the program's pre-mixed palettes with 1,300, 1,500 and 1,800 colors. Colors can be chosen by selecting RGB (red, green, blue), HSV (hue, saturation, value) or CMYK (cyan, yellow, magenta, black) values.

Its image enhancement tools have the ability to emboss, posterize, tile, fade and make images transparent. There also are color filters and tools for adjusting contrast, perspective and sharpness.

In addition to input devices such as scanners and video cameras, Lumena supports a full range of output devices, including film recorders, thermal, inkjet and laser printers and plotters, and videotape recorders.

While Lumena is feature-rich, users in both PC and Mac communities wonder about its interface when it arrives on the Macintosh. Krauss, who runs an all-IBM PC shop, said the success of Lumena's Mac entry depends on whether Time Arts can make the user interface intuitive. "One of the great



This image was created in Lumena by Carol Chiani, president of Video Computer Animation Workshop in New York.

things about the Lumena on the PC is the interface. The interface was not designed. It evolved over the years. I think it will also have to evolve on the Macintosh."

Mac graphics developers said they also believe that Lumena's success on the Mac will depend in part on how well Time Arts is able to capture the Mac's look and feel.

"In terms of image processing, our products are quite comparable," said Rudy Burger, president of Avalon Development

See Lumena, Page 64

Lumena in progress

Laslo Vespremi, MacWEEK contributing editor, has been working with a Mac beta version of Lumena from Time Arts Inc. of Santa Rosa, Calif., for several months and with it created our GA cover. To run this beta version, which is a straight port from the MS-DOS version, Vespremi used a Truevision NuVista board, an Apple 13-inch monitor, a second Sony Multiscan 1302 monitor, Macintosh System 6.03 with the 32-bit Jackson Pollock QuickDraw patch and 5 Mbytes of memory. (When the Mac version of Lumena is completed, it will run on one monitor.)

Below are comparisons of Lumena and SuperMac's PixelPaint, the first high-end color paint application on the Mac and one which is popular with and familiar to many Macintosh graphic artists. — The editors

There are many tools in Lumena that are similar to those in PixelPaint: the brush, pencil, fill tool (bucket), outline or filled squares and ovals, and airbrush. Many others are similar, such as the cycle brush, which changes colors within a stroke in both programs. The fill effects also work in the same way; graduated colors fill in squares or ovals either directionally or by following the shape of the object (shape-fill).

Dissimilarities between Lumena and PixelPaint deal mainly with the number of options available in

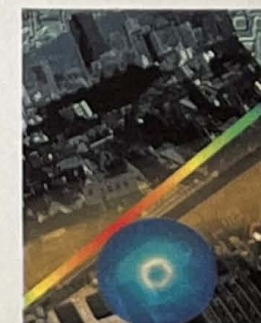
the operations and with the quality of the results. Lumena takes full advantage of 32-bit "true" color to generate incredibly smooth graduations, airbrush or watercolor effects. However, this gap may close when SuperMac releases a 32-bit version of PixelPaint (see main story, above).

In Lumena, sizes can be set for a wide variety of paintbrushes including air, stipple, calk, water, pressure, smear and texture brushes. Fonts can be tilted, rotated, moved or scaled.

Tools can work in anti-aliasing mode to generate smooth outlines as well as different transparency levels.

Effects. Effects in Lumena are similar to those in PixelPaint. Imported images can be manipulated both

See In progress, Page 64

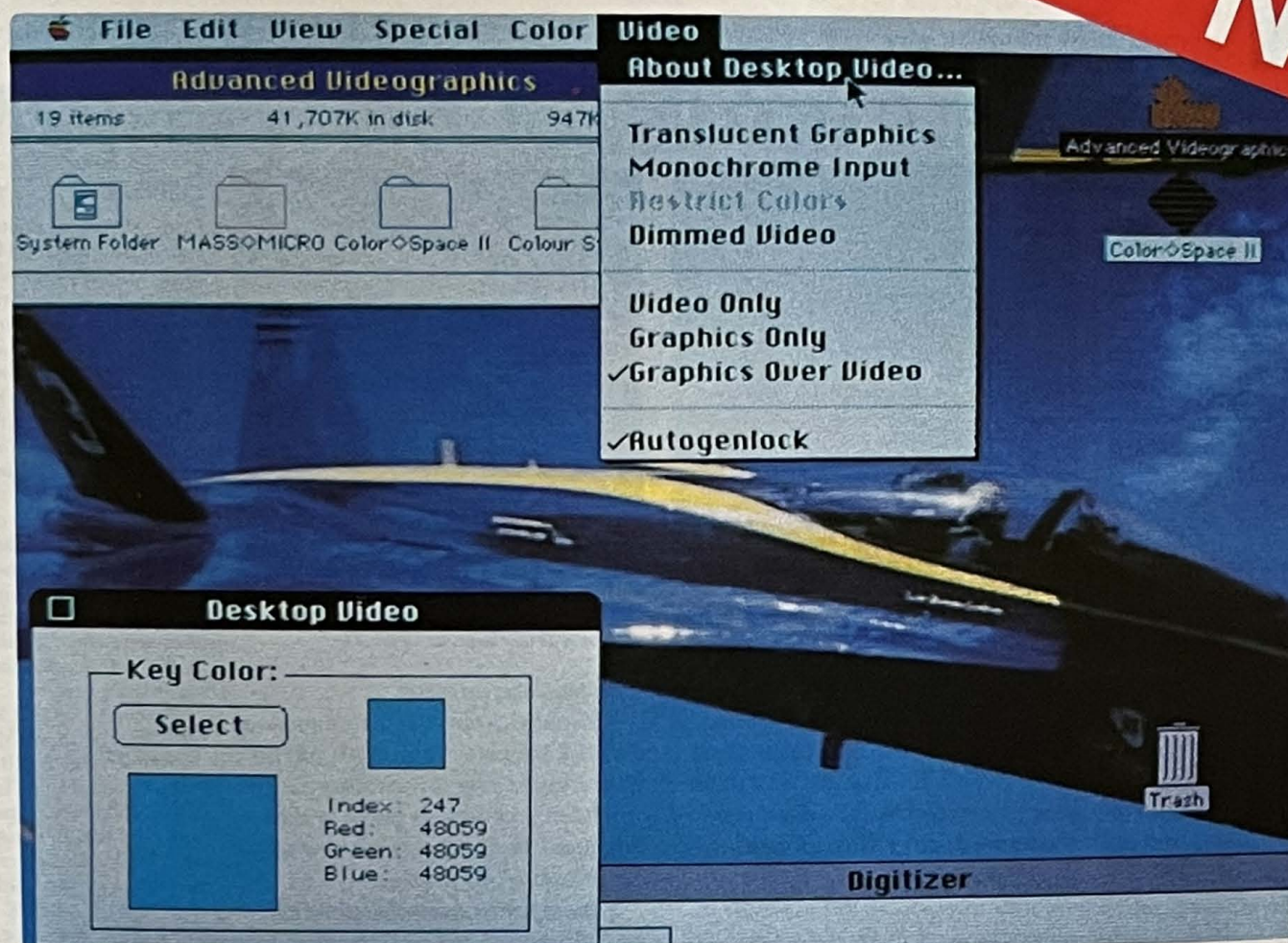


Laslo Vespremi, MacWEEK contributing editor, used a combination of Lumena's tools to create the April GA cover.



This cover for the May 1989 Sharper Image catalog was produced with PC-based Lumena and Crystal 3-D from Time Arts Inc. Noren Schmitt is Sharper Image art director, and John Derry is the artist.

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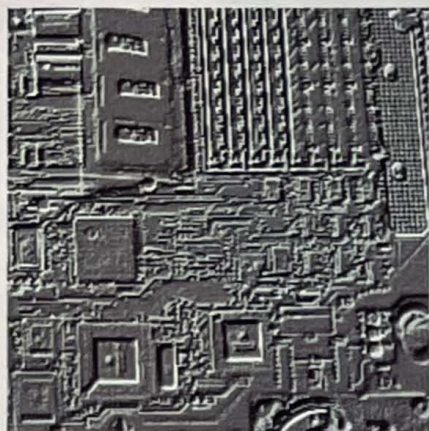
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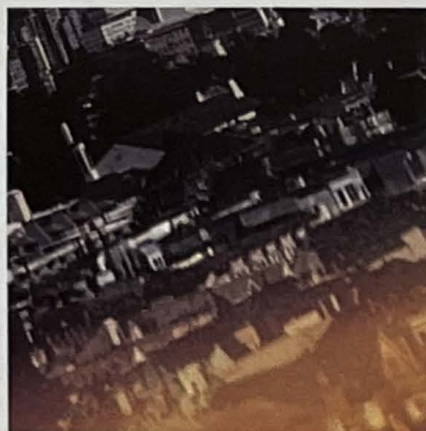
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The Emboss tool creates the effect of an image being in relief, or raised from the surface.



This demonstrates a gradual fade of one photograph into another with Lumena's Fadeget command.



Colors can be blended with the Grad command on the Fills menu; up to 32 color blends can be picked up.

In progress Continued from Page 62

by adjusting the color scale or the level of brightness. Selected areas can be rotated or distorted (shear, perspective and distort), and images can be sharpened or diffused. Both programs have a Trace Edges command that will enhance the outlines of objects.

Mac graphics file compatibility in Lumena is currently limited to PICT2 and tag image file format (TIFF) files, but the company plans to support other formats in the release version.

An effect unique to Lumena is the ability to establish several buffer areas that can store and retrieve

images, similar to the Mac's Scrapbook/Clipboard combination. These images can be merged at different transparency levels on or off a masked area to create intricate special effects. (For example, text or graphic elements can be turned into automasks and made to pick up a second picture within the first image.)

For the cover. I tried to use tools with no counterpart in any current Mac paint and image-editing programs:

► **Fadeget** (if this sounds like an IBM-command, it is) allows scanned images to overlay each other in a directional fade mode. It can create the effect

of one image fading into another.

► **Mascolor**, which allows users to create a mask out of anything, even color text. If you want to make text appear as a second image, this is the feature to use.

► **Emboss**, which creates the effect of an image being in relief. The direction of the light is user-definable and works well with pixelation.

► **Polyline**, a dream of a selection tool. Not only does it allow more-precise selection than the Lasso (also available) it is editable until the selection is perfect.

We'll keep you posted on the progress of Lumena and of the already established Mac paint programs as they climb the 32-bit ladder. — By Laslo Vespremi

Lumena

Continued from Page 62

Corp., creator of PhotoMac color-retouching software. "I think the biggest difference is likely to be in how well Lumena integrates itself in the Mac environment in terms of look and feel, user interface and its ability to work with other Mac page-layout and graphics packages. There is usually a significant difference between a product designed on the Mac from the ground up and one that was originally designed on a different platform and ported over to the Mac."

Time Arts is aware of the challenge of implementing the Mac look and feel and is currently designing the interface.

Malone said the company is working closely with Bruce Tagnazzini, Apple's human interface evangelist, and that "there are some elegant interface options for some of the sophisticated tools."

Although graphics designer Ian McLean has worked with the Mac, he continues to use Lumena on the IBM PC with a Targa graphics board from Truevision Inc. because of the 32-bit color capabilities offered by the duo. Now that Indianapolis-based Truevision has a Mac II version of its board, the NuVista, McLean said he would be interested in trading in his PC for a Mac. "One of the things that is going to be critical to the Macintosh as a graphics workstation will revolve around a 24-bit operating system," said McLean, a designer with Primo Angeli Design, a San Francisco firm that specializes in package design. "As the Macintosh moves

See Lumena, Page 66

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Lumena

Continued from Page 64

into 24-bit color, the IBM PC will be out of the picture as a graphics workstation."

Carol Chiani, president of New York-based Video Computer Animation Workshop, has also been using the Macintosh — but mostly for black-and-white work. She said she believes that a Mac version of Lumena will greatly expand the Mac's graphics potential. "Lumena is a very smartly designed software package, and it's the best on the market for doing production," she said. "I'm very excited

about seeing it on the Mac II."

Although 32-bit color capabilities have been available in the PC world for some time, most Mac graphics developers have been awaiting the release this spring of Apple's new version of its QuickDraw graphics software, which will enable Mac developers to create programs supporting 32-bit color.

In the Macintosh world, Lumena will compete with color paint and image-processing programs such as PixelPaint from Super-Mac Technology, LaserPaint Color II from LaserWare Inc., Studio/8 from Electronic

Arts, PhotonPaint from MicroIllusions Inc., ColorStudio from Letraset USA and Photo-Mac from Avalon Development Corp.

Keith McGregor, one of authors of PixelPaint, welcomes the competition from Lumena. "It hasn't been too much of a secret that we're working on a 32-bit version of PixelPaint and once that is out, I don't think we'll have too much to worry about from Lumena," he said. "The more programs that come out, the better overall everybody gets. I think competition increases functionality." □

Sixteen bits

Continued from Page 58

is from Data Translation (see "Mac enters video picture," Page 70). Several other vendors have 16-bit cards under development. Radius has acknowledged that it is preparing a 16-bit color board, and Truevision allows users of its new board family to switch to 16-bit processing.

According to all sources, the good news is that the new version of color QuickDraw should handle 16-, 24- and 32-bit boards with equal ease as long as the developers never write directly to the screen but always use QuickDraw calls, and provided that the alpha channel is not critical for the program to function. It is for this very reason that Truevision has made its boards software-switchable from 16 to 24 to 32 bits. They are anticipating software that the user can take advantage of on several levels of pixel depth.

The beauty of color QuickDraw, according to Mark Canter, founder of MacroMind, is that on the application level you will be able to transparently deal with eight-bit, 16-bit or 32-bit monitors by simply making the QuickDraw calls. "Color QuickDraw can automatically take care of color remapping from one color resolution to another so that what gets developed for a 16-bit monitor can run equally well on an eight-bit monitor or a 32-bit one without adjustments in the software," he said.

Speed may be one of the biggest advantages. "In animation, the colors are changing so fast that even professional video systems are often only 15-bit color," Canter said. "With a 16-bit card, I can move the data almost in real time, and with the improvement in mips (millions of instructions per second) in current machines, I would feel very comfortable telling my customers that within two years we would be capable of doing real-time 16-bit animation."

If Truevision's experience in the PC world is typical, it may well be the 16-bit arena that will take off. According to Dennis Collins, marketing communications manager for Truevision, "the large majority of applications for Targa boards [on the PC] have been for the 16-bit area."

Is 32-bit color doomed then? Hardly, said Singer; there is room for both. "We believe that both 16-bit and 32-bit color are valuable," he said. "Sixteen bits is great for multimedia, animation and many other uses. Thirty-two-bit color is needed because we sell to the very high-end graphics users who really need the extra quality." — By Steve Hannaford

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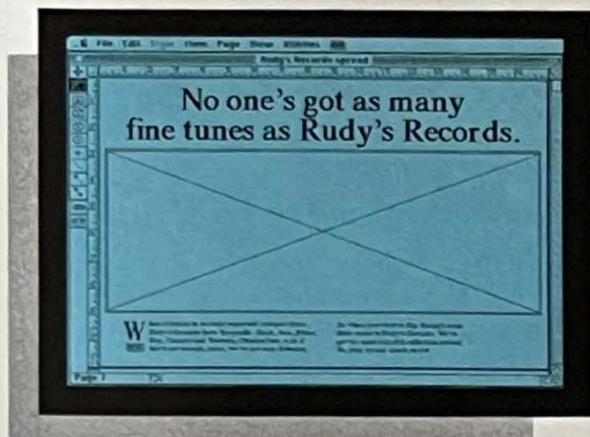
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Mac enters video picture

By Michael Murie

New video digitizers and genlock boards are helping the Mac II realize its potential in the video market.

While the Macintosh has become the predominant workstation in the graphics and publishing fields, it has not yet made a serious impact on the video industry. In fact, the Commodore Amiga is far more highly regarded for its video capabilities, as it is capable of generating a National Television Standards Committee (NTSC) signal "out of the box."

However, the Mac II's open architecture created an opportunity for video developers. Its color capabilities and slots were absolutely necessary for video purposes. Now, two years later, Mac video is finally coming of age, as evidenced by the proliferation of color digitizers and genlock cards.

In this review we take a look at five Mac video offerings: three digitizers and two genlock boards (see glossary). While this equipment is capable of producing good results, factors such as the type of video camera used, the quality of the source image and human artistry are also critical.

When working with color digitizers, it is imperative to have a good camera and very good lighting. A consumer-grade camcorder will produce results that are barely acceptable, although the new SuperVHS cameras are better. If you have access to a professional camera, use it. Furthermore, just as with color photography, regular indoor lighting will produce poor results.

Producing superior graphics for output on NTSC video requires some knowledge of the inherent limitations of the NTSC system. Because of the interlaced display, avoid 1-pixel-wide lines and dithered patterns. Use pastel colors rather than saturated colors, if possible. Avoid bright reds in particular. Finally, the better the quality of the input source and the recording deck, the better the final image.

ProViz is a wiz. The ProViz digitizer from Pixelogic is an external SCSI device. It works with the Mac Plus, SE or II, but for color work you must use a Mac II. Inputs are provided for an NTSC or RGB (red, green, blue) signal. An external video monitor can also be connected so that you can see what the camera is sending to the digitizer. Two dials on the front of the box control brightness and contrast.



This soda can was shot with a consumer-grade video camera, then digitized with Pixelogic's ProViz digitizer in 12-bit color mode. This picture is a screen dump showing how the picture looks in eight-bit color on the Mac screen.

In 16-gray-level black-and-white mode, the ProViz is capable of grabbing a single video frame. For 256-gray-level black-and-white or color work, it does not work as a frame grabber and can take several seconds to digitize an image. A color image can be digitized in 12-bit (4,096 colors) or 24-bit (16,777,216 colors) mode, but an appropriate video card and monitor are required to see such an image. With an eight-bit card, images are displayed in 256 colors, but they will still be stored with as many colors as were digitized. We found that it takes about a second and a half to digitize an image with 4,096 colors — a short enough time that a subject could stand in front of the camera and provide an acceptable image. When digitizing a moving subject from videotape, a VCR with a clean pause is required.

This still life was captured in 24-bit mode by the ProViz digitizer. Pixelogic's RGB converter was also used. The picture is enlarged here by 75 percent to show detail.

The ProViz is not capable of digitizing a color NTSC signal; it will only create a color image from an RGB signal. Either an RGB camera must be used (a sensible decision if buying a new camera specifically for this device), or the RGB converter that Pixelogic sells separately should be purchased. The RGB converter turns a standard NTSC camera signal into RGB output. The box, which is a little smaller than the ProViz, provides both RGB in and out, as well as NTSC in and out. In addition to the RCA jack for a standard camcorder, a plug is provided for a SuperVHS camera, which will generate a much better image than most consumer-quality cameras. On the front of the converter are adjustments for intensity, hue and saturation. It is reasonably easy to balance these.

The ProViz software is one of the better programs provided with Mac digitizers. It has many options and will save images in several formats, including Encapsulated PostScript. Additionally, Pixelogic has just licensed Apple's HyperScan software (the software included with Apple's flatbed scanner) and is modifying it to work with the ProViz. We tried a pre-release version called HyperVision, which worked extremely well. HyperCard users should look closely at this

See Video, Page 72



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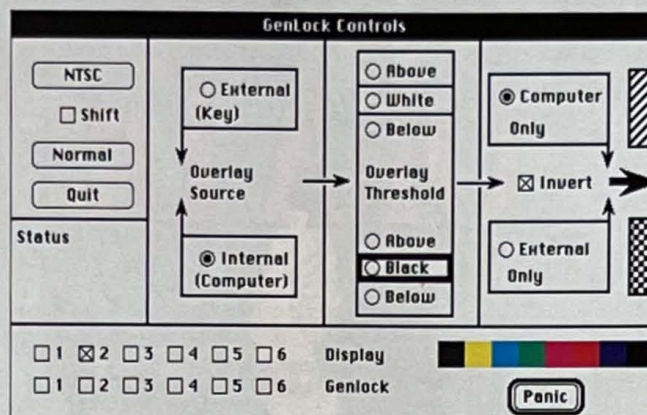
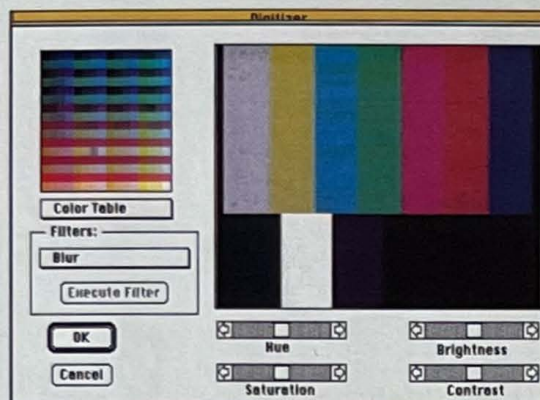
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(Near right) The digitizer desk accessory included with the ColorSpace board includes options for adjusting the hue, saturation, brightness and contrast of the captured image. (Far right) The Julian Systems board is controlled by the stand-alone Genlock application. This program splits the control options into logical blocks.



Video

Continued from Page 70

hardware/software combination, remembering also that ProViz is available in a black-and-white-only model that can be upgraded in the field.

We should mention here that scanners and video digitizers are complementary products, not competitors. While a scanner can create images with higher resolution, a video digitizer is capable of digitizing 3-D objects directly, with no need to take a photograph first. Digitizers are ideal for screen resolution images used in presentations and some newsletter and newspaper applications. Scanners provide higher-quality output for desktop publishing.

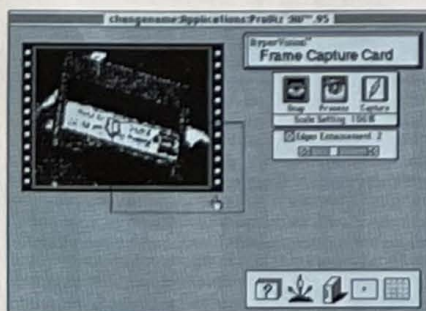
The ProViz digitizer is excellent for generating 16-gray-scale images and for color images made using a copy stand. Since it can't grab frames in color mode, we rate it only as very good for other color work, although if your subject is amiable or your VCR has a clean pause, we would rate it excellent. The HyperVision software, as HyperScan users know already, is outstanding.

Big-time TV Producer. TV Producer from Computer Friends is a genlock card for the Macintosh II. It plugs into a NuBus slot and requires an Apple color video card to function.

When installing the card, two connections are made between the TV Producer card and the Apple video card, and the boards must be placed side by side. One TV Producer provides only NTSC video in and out plugs (standard RCA jacks). Another option provides a DB-15 plug for connecting to an RGB monitor.

A Chooser-level utility controls the board. Since an entire Macintosh screen cannot be displayed on a standard NTSC screen, two versions of this control program are provided. One program centers the Macintosh screen on the output, while the other shifts the display down and to the right, allowing access to the menu bar.

The utility lets you choose between Normal and NTSC options. Choosing NTSC sends



Clicking on the snap button of HyperVision's main capture screen grabs an image, which is then displayed at a reduced size on the left of the computer screen. The selection rectangle tool is used to select the part of the image to be "processed" into a screen-size display.

the Macintosh screen image to the composite video and RGB monitor (if connected), rendering the Apple screen unreadable. The Normal setting restores the Apple screen.

Once the board is transmitting a signal, you can define how the Macintosh screen interacts with the external video signal. With the See Through None option, which is the default, only the Macintosh screen is sent out to NTSC. Conversely, See Through All sends through only the external video signal.

The most useful choices are See Through and See Through All But. With these options a color currently being displayed can be picked, and the external video signal will appear through either the color selected or all colors not selected. This allows you to merge graphics and video, as in scrolling titles.

For those who wish to generate NTSC video with their Macintosh, TV Producer is definitely worth considering.

ColorSpace II. Mass Micro Systems' ColorSpace II is a genlock card for the Macintosh II. It does not require the Apple video board to function. Because it can provide computer-only images without video mixing to a non-interlaced RGB monitor, it can also be used with an appropriate third-party monitor as a normal video card.

Installation involves simply plugging the board into the Mac II and installing a Control Panel device (cdev) in the System folder. Two desk accessories provide additional options and board control.

The board features NTSC video in and out, along with a plug for connecting the optional RGB monitor.

An advantage of this board is that both it and the Apple video card will work concurrently; the board will appear with the Apple monitor in the control panel. You can define how the two monitors are spatially related to one another and then, once everything is turned on, drag program windows from the Apple video card to the ColorSpace II. These items will be displayed on any RGB monitor connected to the ColorSpace II as well as any NTSC device connected to it. The disadvantage of this system is that some applications, notably VideoWorks II, do not provide a window to drag. This is a fault of the programs, not the board. However by defining the ColorSpace II as the start-up monitor, the menu bar and VideoWorks II will appear on the ColorSpace II board.

One of the DAs provided with the board defines how external video interacts with the graphics on the Macintosh screen. The options are Video Only, Graphics Only and Graphics Over Video. With the Graphics Over Video option, a color can be selected through which the external video will appear.

The second DA is a digitizer. Images can be digitized in two sizes. The smaller size takes about a second and a half, while a full-screen scan takes several seconds. For a good image to be generated, the source must be

still during that period. Limited controls to manipulate resulting images are provided, and they can be saved as PICT files.

This board was easy to use. Although documentation we had was marked "preliminary," it provided all the information needed, along with useful hints and tips. The software worked very well, apart from a couple of bugs. The digitizer capability is a nice extra, although it is limited due to its slowness and the fact that it's only an eight-bit board.

Mass Micro said new documentation, software and a minor fix to the board's EPROM will be available soon. Furthermore, it is being bundled with MacroMind's VideoWorks II animation program.

Its ability to function both instead of and with the Apple video board, along with its software, makes the ColorSpace II an excellent choice for multimedia functions as well as for generating NTSC video.

Julian Systems Genlock

Converter. The Julian Systems Genlock Converter requires a connection to be made between the Apple color video card and the Julian card. This is accomplished with a cable and a plug that attaches to the Apple video card. Julian Systems will perform this installation for you if you wish.

A second connection is made by plugging a cable into the output of the Apple board. This cable has a plug in the middle to which your external monitor is then connected.

The genlock application software lets you specify how

Macintosh graphics and external video are mixed. Unlike the ColorSpace II and TV Producer boards, the Julian board provides for key input. Key signals can be used by the genlock board instead of the Macintosh graphics to determine where the external video is shown. Such a signal would usually be provided by video switchers or other special-effects boards that might be used before feeding the external video signal into the Macintosh.

Julian Systems is obviously aiming this board at the professional video market, since BNC connectors are provided rather than the consumer RCA connectors used on the other boards.

The board also provides color keying, but unlike the ColorSpace II and TV Producer boards, which allow you to choose a particular color to key to, the Julian Systems board per-

See Video, Page 78

Zooming in on video terminology

Digitizer — A device that can convert an analog signal, like that of a videotape or audio cassette, to a digital one.

Frame — A complete video image. In the case of the NTSC standard, it is the combination of an even and odd scan, for example, one-thirtieth of a second of video.

Frame grabber — A video digitizer capable of capturing a single frame at a time.

Genlock — The synchronization of two video signals (usually NTSC) so that the video frames match. Genlocking is necessary if two signals, such as Macintosh graphics and live video, are to be mixed to create one image. A board may be capable of outputting an NTSC signal but not of genlocking, or mixing, that signal with an external video signal.

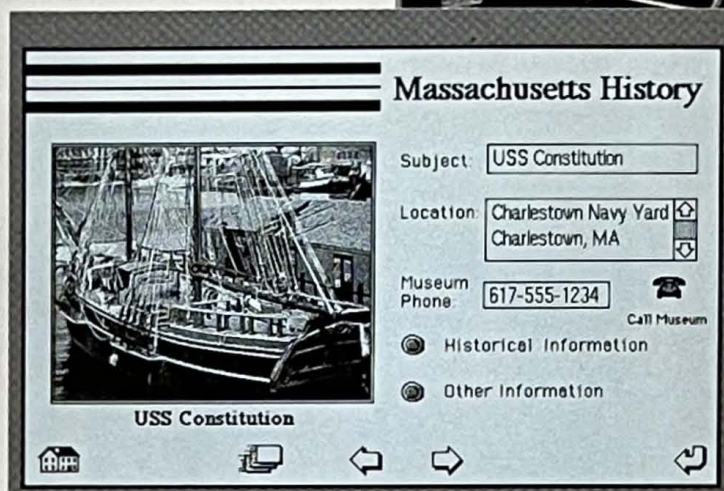
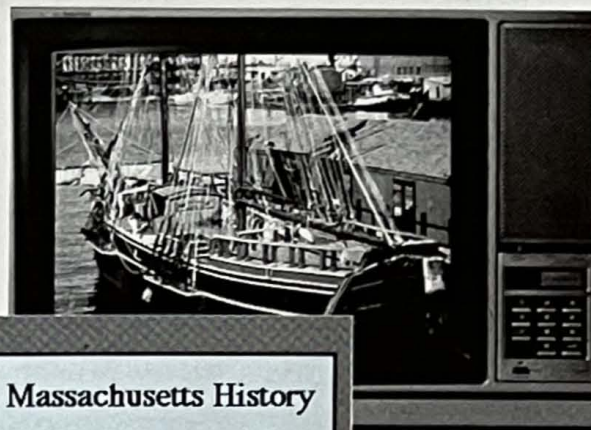
Interlaced — An NTSC signal is interlaced. The electron gun in the tube draws first the odd and then the even horizontal lines (called the odd and even fields). It takes one-sixtieth of a second to draw one set of alternate lines and one-thirtieth of a second to draw both sets, which make up a complete frame of video. This method of screen drawing causes problems with 1-pixel-wide horizontal lines. Macintosh window title bars will appear to flicker badly because the 1-pixel-wide lines are being drawn alternately. The best way to overcome this problem is to always use horizontal lines with an even number of pixels.

Keying — When merging two video signals, often part of one is made "transparent" so that the second image can be seen. Examples of this are the computer weather maps shown on television, where storm clouds are seen to move behind the announcer. A color is chosen on one signal, called the key color. Keying circuitry checks every pixel of each frame of that signal and substitutes the corresponding pixel from the other video signal where it finds that color.

See Terminology, Page 78

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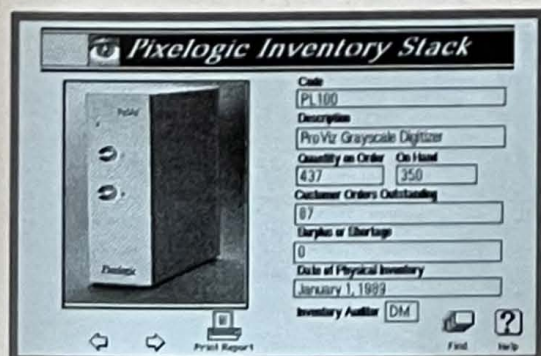


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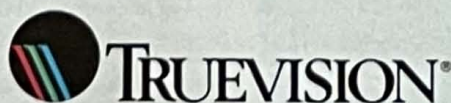
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High-definition TV's future comes into focus

By Tony Reveaux

With the advent of HDTV, the Mac may become a dynamic desktop workstation that can receive dazzling video pictures.

Developing high-definition television (HDTV), a video system that will provide viewers with movie theater-quality images at any size, digital stereo sound and computer compatibility, is a multibillion-dollar challenge for American industry.

And it could mean a chance for the Mac to become a dynamic desktop workstation that can receive dazzling video pictures. Yet the broadcast and film industries, government agencies and the computer industry are still debating whether to develop the necessary systems with U.S. standards or use standards that the Japanese have already developed to produce and transmit HDTV and manufacture tape, disk, receiver and display systems.

Nippon Hoso Kyokai (NHK) is scheduled to initiate HDTV broadcasts in Japan this month and expects to ramp up to full HDTV transmission by 1990. European consortiums have developed standards, a standards war is raging in the United States. In the United States, while no single company has made a commitment resembling NHK's \$700 million investment, 23 companies, including Apple, have formed an initial task force under the American Electronics Association, which is funding the development of a national

HDTV business plan. Even the Pentagon predicts wide military applications for HDTV.

HDTV standard best for computer users. No matter who wins the debate over competing formats, by 1995 we will be using someone's system. And although full digital HDTV has the highest startup, installation and operating costs, it would provide the greatest number of technical advantages for computer users.

HDTV is basically a wide-bandwidth analog system that converts video signals to digital form. The signals are compressed and transmitted as 1,225 horizontal scanning lines of crystal-clear resolution video. The wide-screen format has "Cinema-Scope" proportions, a 16-to-9 aspect ratio and includes selectable digital stereo sound. The National Television System Committee (NTSC) format, on the other hand, provides only 525 lines on a tube that has a 4-to-3 aspect ratio.

Audiences tested in Japan, France and the United States report that on a wide-screen television, an HDTV broadcast is indistinguishable from a 35mm motion picture in a movie theater.

Even with current enhancements, the NTSC format sags and crumbles under the high-end demands of color correction, duplication and expanded display. HDTV, on the other hand, can free the screen of NTSC handicaps like flicker, blur, distortion and misalignment.

More than just a pretty picture.

High-definition television potentially can deliver much more than ideal home entertainment. Digital television and sound, affordable large-screen displays, Integrated Services Digital Network (ISDN) and fiber-optic carriers will support high-end transmission for image processing, photo reconnaissance, photo interpretation, CAD, corporate communications, scientific visualization, slide making, animation and printing.

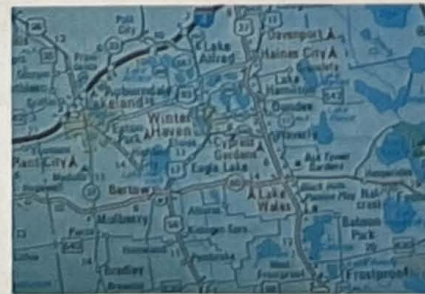
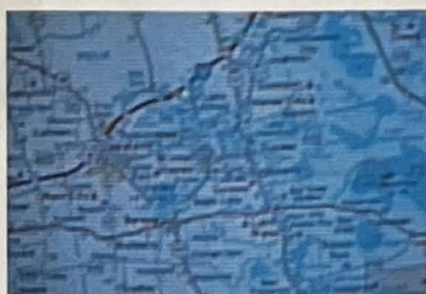
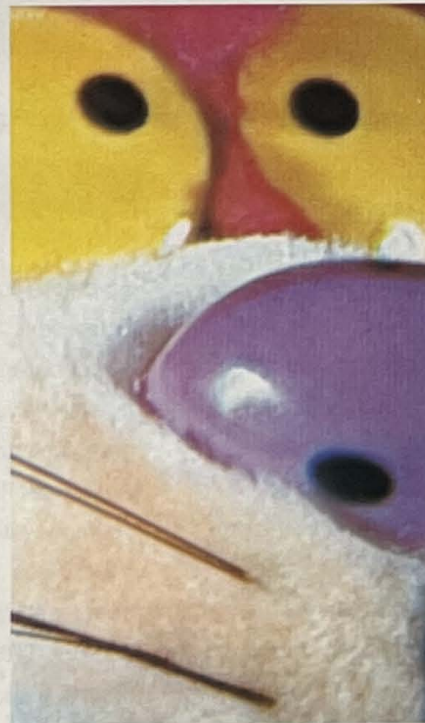
"In the future you are going to see all of these communications technologies dictating how people look at images and information," said Thomas McMahon, research vice president at Symbolics, a computer graphics workstation developer based in Los Angeles. "Symbolics is looking at adopting high-definition [television] for future consoles for color graphic workstations. The wider screen that HDTV calls for holds more information."

For computer graphics, electronic publishing and multimedia, HDTV promises swifter, cheaper transmission of large files through telecommunications because of HDTV's efficient compression and digital compatibility. Digital photographic images from electronic still and motion sources can be input with less scanning and conversion into desktop publishing and video programs. Computers



PHOTOS BY GARY DAVIS/PHOTODISC

The improved resolution of HDTV allows the image to stay clear on larger and wider screens than those generally used for NTSC transmissions. The HDTV monitor (top) eliminates some of the normal distortions that occur on the NTSC monitor (bottom).



The NTSC images (left) provide 525 lines per image, whereas HDTV receives up to 1,125 horizontal scanning lines.

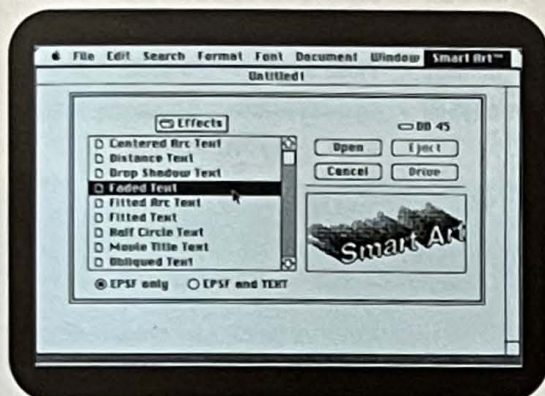
can be wired directly into the phone company's ISDN plug in the wall or they can receive digital photographic images on disk. And digital still and motion documents may be acceptable "as is" to broadcast television, unlike NTSC's inherent interlace and resolution differences, which have always presented barriers to computers.

With further deregulation, HDTV will make it easier for publishing, cable television, broadcasting and motion picture companies to merge into vertically integrated entertainment megacompanies, as recently merged Time Inc. and Warner Brothers now plan to do. It will also benefit the telephone companies, which foresee connecting every home to fiber-optic ISDN backbones. Carrying video will be an important component of the services and would justify such a vast fiber network. And fiber can deliver the full bandwidth of broadcast signals. Cable companies, which will be able to carry HDTV signals after investing far less in transmission facility upgrades than the broadcasters, are already beginning to lobby against the telephone companies, using some of the same arguments they used to win their licenses.

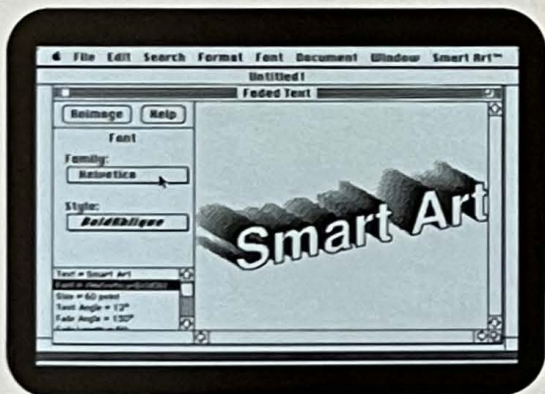
Competing pixel standards. One speed bump in the way of complete HDTV compatibility, however, is the rectangular pixels used in the latest beta version. A Society of Motion Picture and Television Engineers committee is considering a recommendation to the Federal Communications Committee that it be changed to the square-pixel

See HDTV, Page 79

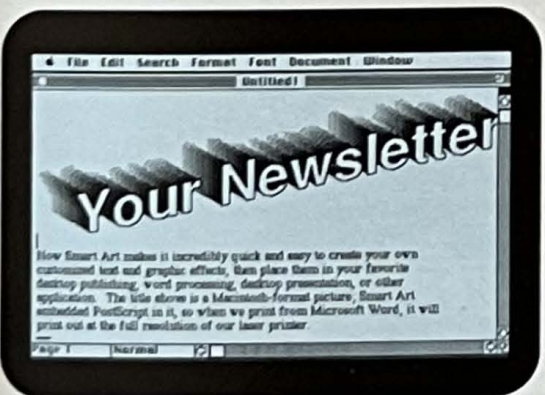
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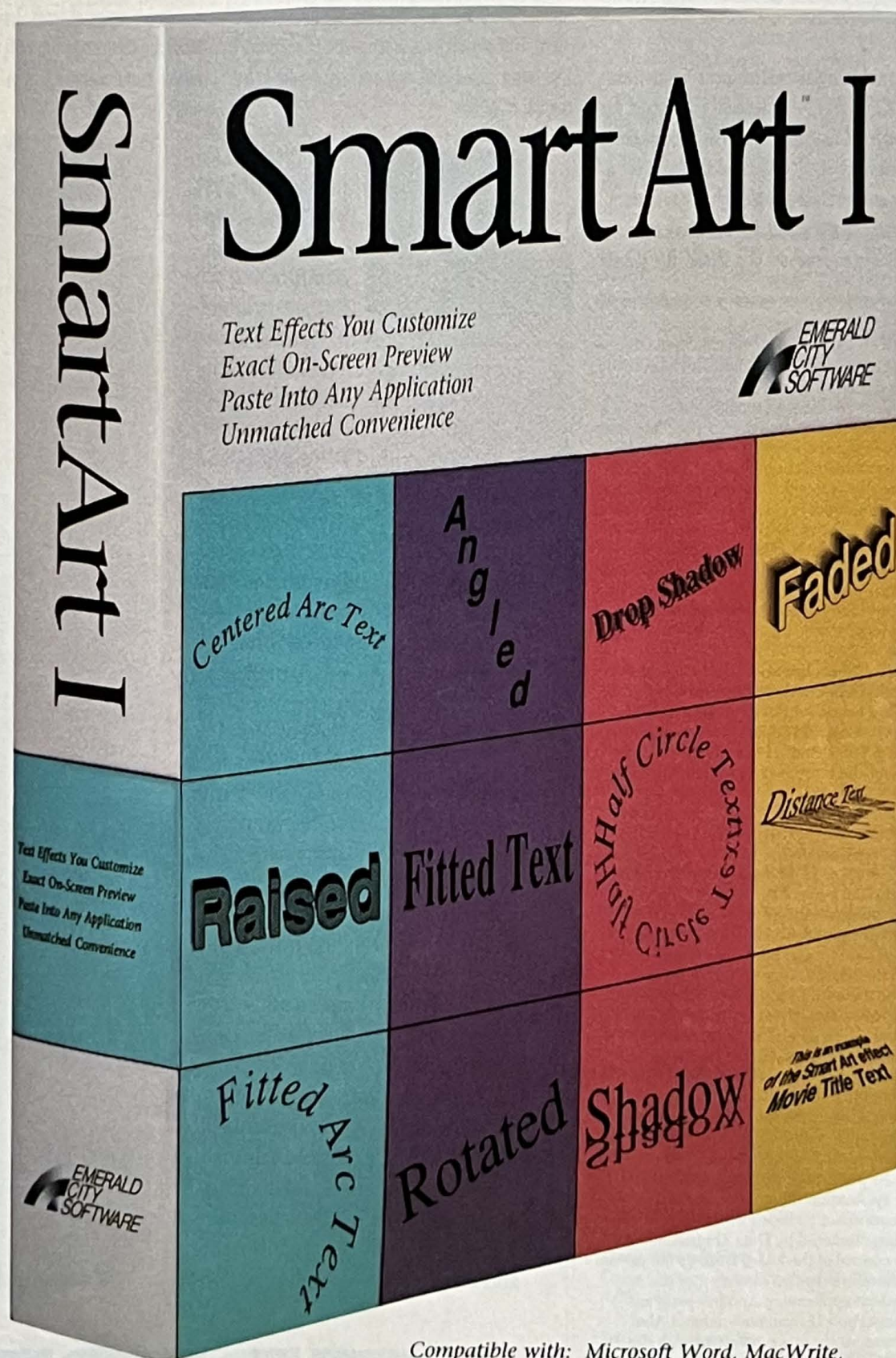
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Terminology

Continued from Page 72

Non-interlaced — Apple's Mac II monitors are non-interlaced. Each horizontal line of the screen is redrawn by the electron gun in the picture tube sequentially, at a rate equal to the raster rate of the monitor.

National Television Standards Committee (NTSC) format — A standard video signal that is used by all American home video equipment and television sets. All the needed color information is encoded in the single signal. It consists of an interlaced signal that displays every other scan line in one-thirtieth of a second. It is some-

times referred to as a composite video signal.

RGB (red, green, blue) format — A video signal that is split into the three component colors of white light. Generally, an RGB video signal has much more clarity and color fidelity than a standard NTSC signal because these components are not being mixed until they are actually displayed by the monitor.

Refresh rate (also called **scan rate** or **raster rate**) — The rate at which the entire screen is redrawn. Refresh rate is normally expressed in hertz, or cycles per second. Every monitor has a particular scan rate or, in the case of a multiscan monitor, a range of rates. Typical scan rates for Mac monitors range from 60 Hz to 80 Hz, which means that the entire screen is redrawn 60 to 80 times per second.

Scanner — This term usually refers to a digitizer that works with flat images, such as photographs or books, producing a higher-density image than a video digitizer, which is capable of digitizing 3-D objects directly.

Video digitizer — A device capable of converting a video signal to a digital (bit-mapped) image. — By Michael Murie

Video

Continued from Page 72

forms its keying using brightness. The very bright or dark areas of the image are made transparent to the external video. Either black or white should be used on the graphics where the video signal is to appear. This may mean altering animation or graphics.

Along with the genlock application, Julian Systems also provided a series of test images like color bars, which are helpful tools.

Due to its external key capabilities and BNC connectors, this board is the choice for applications where professional equipment, such as video switchers and chroma keyers, is being used.

Data Translation Color Capture board. Data Translation released its Quick Capture board a little over a year ago. This NuBus card could digitize a single frame of video in 256 shades of gray. It was impressive, but the new ColorCapture board is even better.

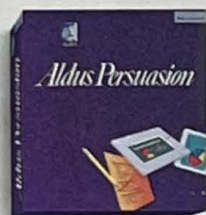
Color Capture is a 16-bit frame grabber board that will digitize in color. It provides three NTSC inputs, an RGB output and an NTSC output. This board is able to digitize a single frame in color.

Installing ColorCapture is a simple process of plugging in the board and copying the software to your hard disk. However, while the board is very powerful, the software that comes with it is not. The program simply allows you to select the input (one of the three channels), digitize, pass the incoming video signal to the connected monitor and save images as tag image file format (TIFF) or a proprietary format. The board is also capable of a hardware scroll, pan and enlargement.

Manipulation of the resulting color images must be performed with an outside color paint application. PhotoMac, a separate application not included with Color Capture but also marketed by Data Translation, provides control of the board from its menu. You can therefore digitize directly into the PhotoMac application. Another program, GraphistPaint II from now-defunct Aba Software, works in a similar way with the Quick Capture board.

Data Translation realizes that this powerful board needs good software to take advantage of it, and while its lack of digitizing finesse can be solved by purchasing PhotoMac, its ability to generate video must wait for two events. First, when Apple's 32-bit QuickDraw routines are released, the system will be able to access the ColorCapture board as another output device. This will enable users to more easily output Mac-

See Video, next page



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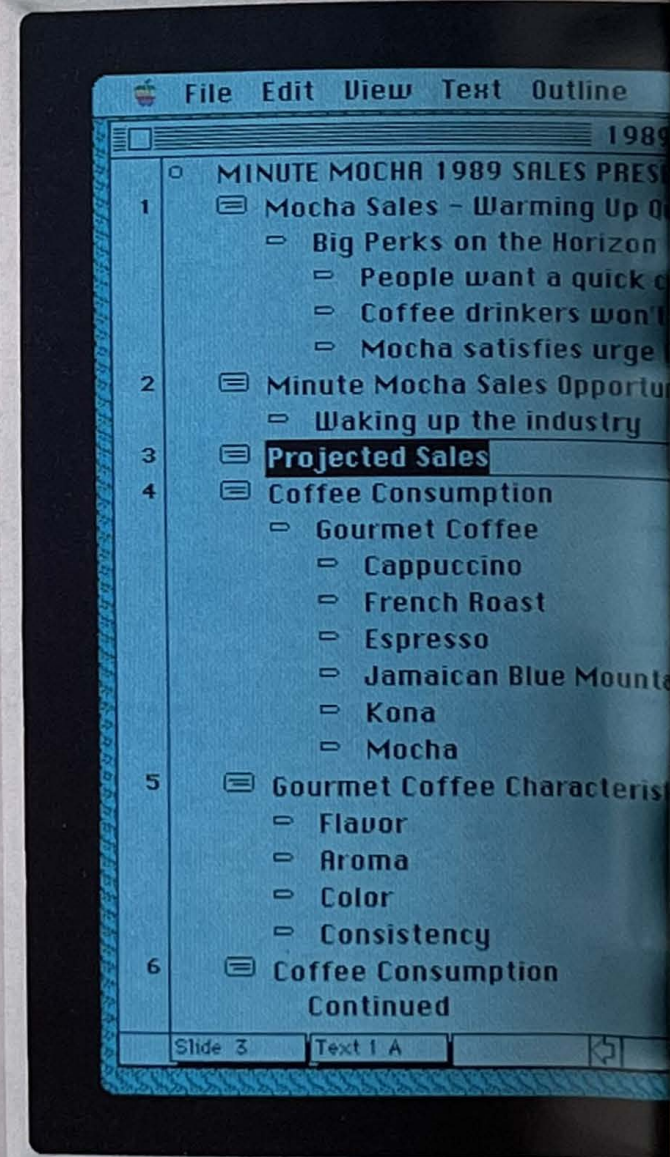
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HDTV

Continued from Page 76

standard of the computer world.

The photorealism that is becoming more widespread in computer graphics, as exemplified by Pixar's Renderman standard, can be fully supported by digital video. With analog NTSC, images degrade after the first dub. Digital video can retain its high quality through 20 generations of duplication. The term "desktop video" may become redundant as the differences between the personal computer and the television blur.

HDTV receivers will be expensive, due in part to the memory and high-speed chips needed for digital interpolation and control, regardless of whether a conventional CRT tube or some other method is used to put the image on display. The large, wall-hung video screen, or "videowall," is the most eagerly awaited of the new display systems for both the home and the business presentation market. Whether they use active matrix, liquid crystal, the solid-state light valve, NHK's plasma or fiber-optic bundles to create the large-screen image, videowalls are definitely

on the way. But for killer displays like those seen in "Star Trek," we will probably have to wait until the year 2001.

According to Dale Cripps, editor of the HDTV Newsletter, "Just as the computer was established in the business world before it was accessible to the home environment, that may be the best growth path for HDTV, where the initial higher cost levels can be justified through delivery of top-quality video reports and presentations."

Once a digital, high-resolution distribution system is in place, the home may never be

the same. We may see dynamic, interactive dialogs resembling the far-reaching video game-style bonding of computers and television as seen in the late TV show "Max Headroom." For a preview, media analysts cite the model of the real-time broadcast of a football game, opera or convention during which the viewer will be able to zip among the different live camera feeds from the event, zooming in and out, freeze-framing and pasting picture-in-picture windows onto that big, bright screen on the wall.

But will the program be sponsored by Kikkoman or by Coke? Stay tuned. □

Tony Reveaux, editor of *Computer Publicity News*, is a contributing editor of *Artweek*.

Video

Continued from previous page

intosh graphics to video, as well as to perform color keying. Data Translation is working on other software, expected to be available in the fall, which will add more video output capabilities.

The Color Capture/PhotoMac combination is already being used by newspapers to produce color separations from video images. The Color Capture board is expensive, but its ability to digitize a single video frame in 16-bit color makes it attractive for many purposes. The imminent arrival of 32-bit QuickDraw routines promises even more from this board.

Conclusions. Perhaps the most interesting thing we discovered while compiling this article was just how new this field is to most Macintosh users. The oldest of these video boards has been available for just over a year. The others are newer, and supplies have been limited. Software for manipulating 16- and 24-bit color images is available, but software for video production is still lagging, although MacroMind Director shows promise.

Video board manufacturers are constantly updating their software and hardware, and Apple's new 32-bit QuickDraw could change the way that some boards work. New users should be wary but should also be aware that the Macintosh can work well with video. □

Michael Murie is a graphic artist and multimedia presentation designer based in Somerville, Mass.

Product Info

Computer Friends Inc.

TV Producer: NTSC Board: \$799; Pro Option: \$999; RGB & Pro Options: \$1,500 (requires Apple four- or eight-bit color video card)
(503) 626-2291

Data Translation Inc.

Color Capture Board for Mac II: \$2,595
(508) 481-3700

Julian Systems Inc.

Genlock Converter for Mac II: \$999 (requires Apple four- or eight-bit color video card)
(415) 686-4400

Mass Micro Systems Inc.

ColorSpace II: \$1,995 (requires multisynch monitor)
(408) 522-1200

Pixelogic Inc.

ProViz Color Video Digitizer: \$1,695
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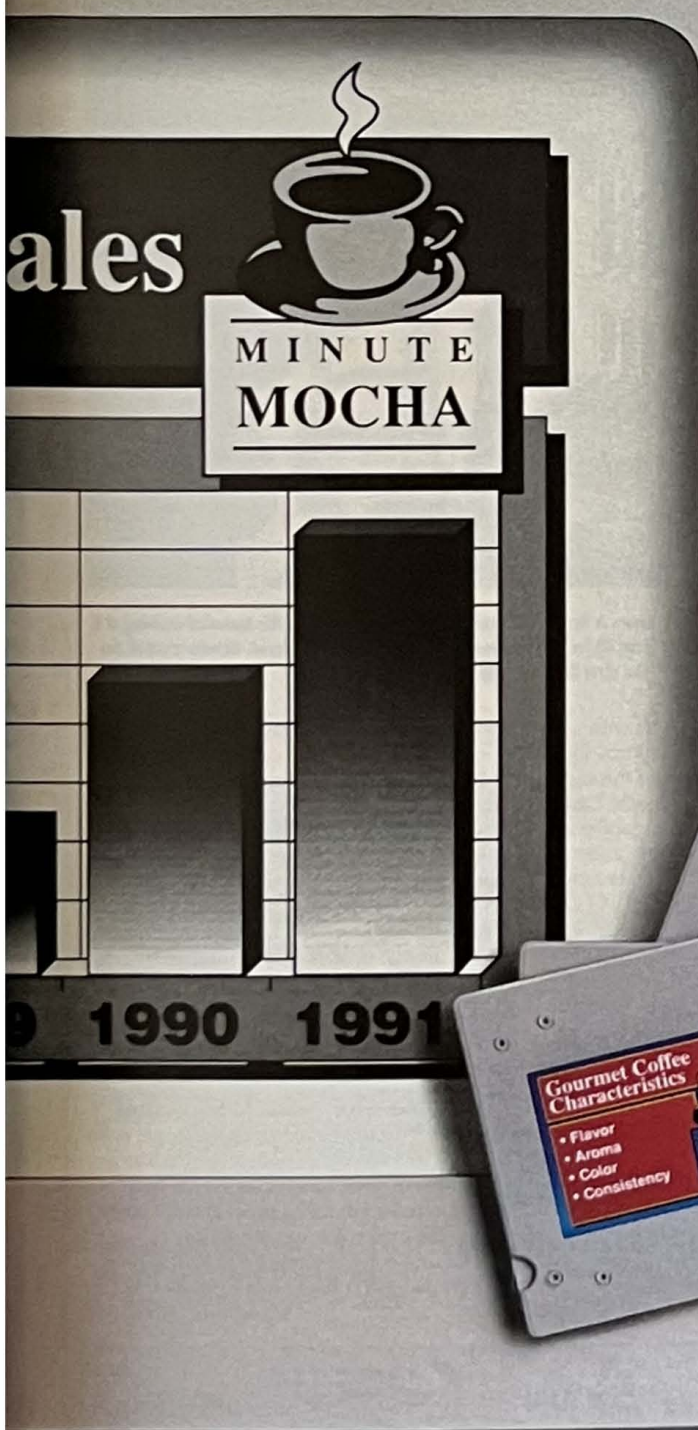
12/88 Macintosh Ratings Report, *Software Digest* says, "Persuasion provides the best balance of features, usability, and performance to meet the needs of most users."

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Mac allows time for good design

One product and graphic design company found that Macintoshes cut costs and time in half on a massive project with a very tight deadline.

By Jamie Krutz

Pressures of time and budget are a constant fact of life in product and graphic design, but Volan Design Associates has an ally. Six years ago VDA founders Greg and Wendy Volan discovered the Apple Lisa. "We made a decision very early on that we were going to devote a great deal of energy into making the computer a working tool in our business," said Greg Volan. That decision has changed the way the company works.

VDA is based in Louisville, Colo., just north of Denver. Specializing in high-tech and medical product design, corporate graphic design and marketing communications, it has attracted clients like Hewlett-Packard, MiniScribe and Cobe Laboratories.

Greg Volan is creative director, project manager and one of VDA's six designers. Wendy Volan's also a creative director as well as a writer, editor and account manager.

The challenge. VDA was pushed to the limit with a recent project for Denver-based Altus Inc., a corporate aircraft leasing company that needed—in two weeks—a 60-page book describing the jet options the company offers. Altus President Victor Dukay hired VDA to create a design for the book as well as to lay out the finished product, which included 27 pages of charts and graphs.

The charts would show details such as aircraft resale value, cabin comfort, leg and shoulder room, baggage capacity, noise levels, trip charts and various aircraft performance parameters under a variety of conditions.

"I don't think you'd attempt this project, at least in this form, without a Mac," said Greg Volan. "Some of these illustrations would require weeks of preparation using traditional methods."

"The process. Altus provided VDA with a list of information that the designers decided would work well in a horizontal format. A free-lance writer began working on the copy, and VDA's staff launched into the design of the book and the look of the graphics. The company used four designers,

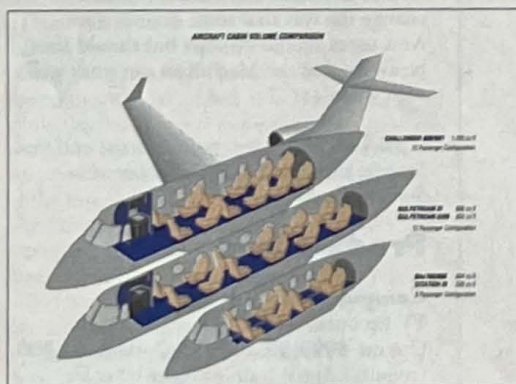
with Greg Volan doing most of the illustration work.

First the designers prepared a page grid and settled on type styles. They met frequently with Dukay to brainstorm graphic ideas for the charts. Initial ideas were quickly sketched by hand. Those that seemed promising were drawn in more detail on the Mac for further consideration. Once the images were in the computer, the designers were able to try different color combinations and make quick color and design changes. The Mac's interactive design capability put them on the fast track in the race against time.

Working with color. Although Greg Volan said screen colors from his Apple color monitor are accurate enough to give him a good idea of what he's doing, he keeps a Pantone color fan and a process color chart handy for final color specifications.

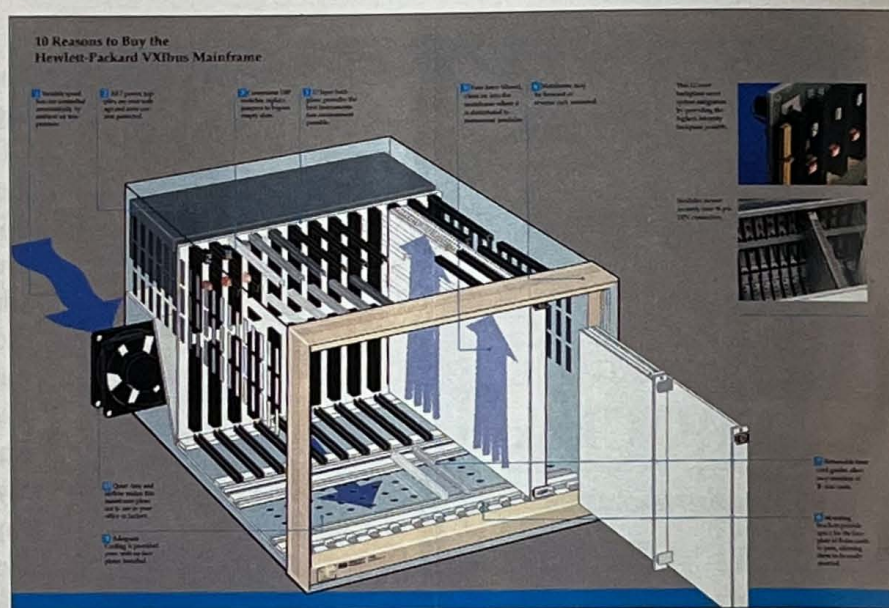
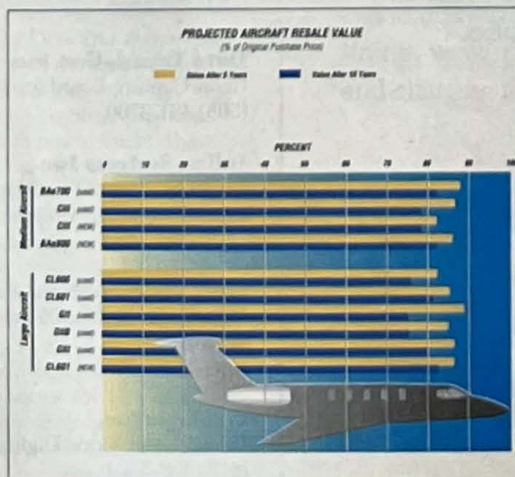
The first color designs for the Altus project demanded color proofs to verify that

Continued on Page 82



This cutaway picture of an airplane appears in the book VDA produced for Altus Inc. It is intended to give potential clients an idea of how much room there is in the plane. Greg Volan created the artwork in Illustrator 88.

The "speed" chart was also executed by Volan in Illustrator 88. The chart and graphic information from Altus worked most effectively in a horizontal format, thus determining the shape of the book itself.

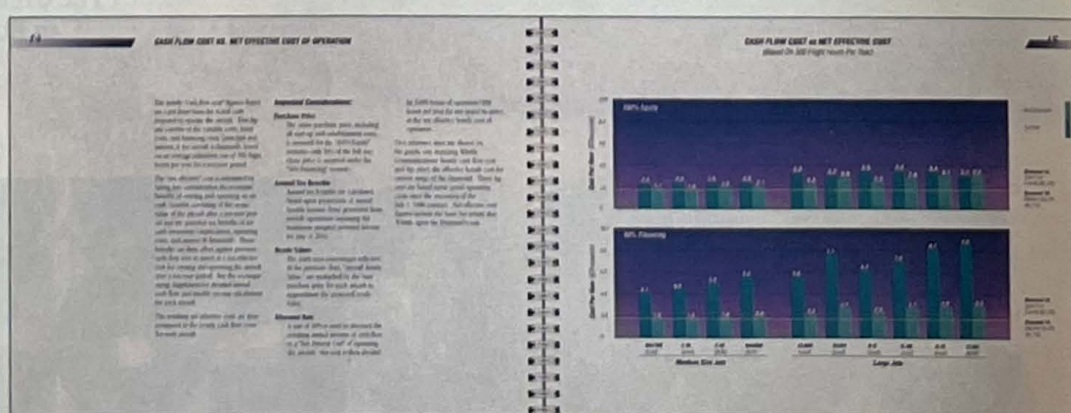


One of Volan Design Associates' corporate clients is Hewlett-Packard. Tony Grieder rendered this technical drawing of a Hewlett-Packard mainframe in Adobe Illustrator 88 for a promotional package that VDA produced. Grieder created the artwork in July 1988, approximately one week after Illustrator 88 was released.

VDA uses three 5-Mbyte Mac IIs with Apple color and monochrome monitors, four SEs and three Pluses, all connected through AppleTalk. In addition, it has an Apple LaserWriter NTX; ThunderScan scanning software from Thunderware of Orinda, Calif.; and a Montage film recorder made by Presentation Technologies of Sunnyvale, Calif.

For design and layout of the company's main engines are Adobe Illustrator 88 from Adobe Systems Inc. of Mountain View, Calif., and QuarkXPress 2.0 from Quark Inc. of Denver. While VDA currently uses eight-bit color, which the Volans said is sufficient for their illustration work, they're keeping an eye on 24-bit color.

The process. Altus provided VDA with a list of information that the designers decided would work well in a horizontal format. A free-lance writer began working on the copy, and VDA's staff launched into the design of the book and the look of the graphics. The company used four designers,

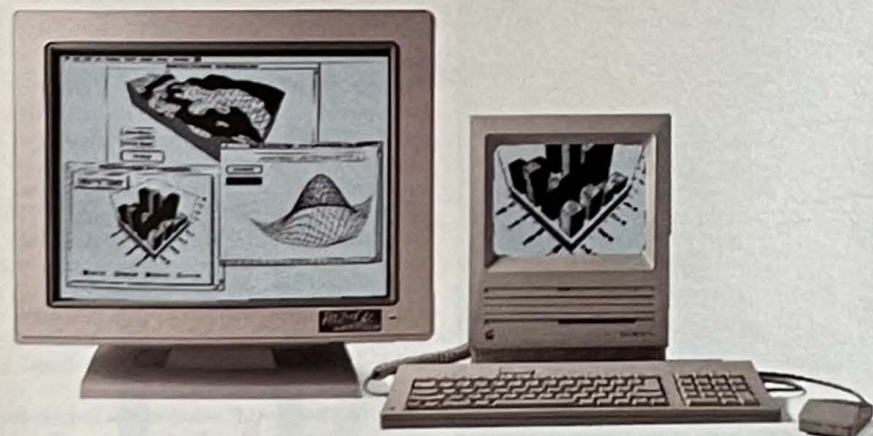


Each spread in the Altus book has text on the left page and a chart or graph on the right. All text pages were paginated and separated in QuarkXPress, all illustrations were created in Illustrator 88 and separated in Adobe Separator, and all folios were separated in QuarkXPress.

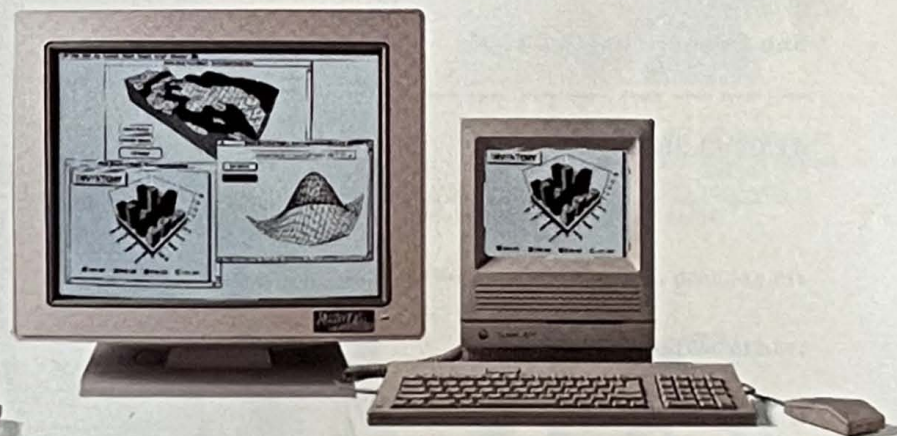
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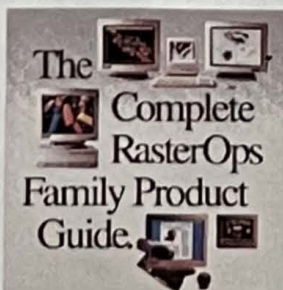


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Continued from Page 80

what was on the screen was a good representation of the final product. However, the Volans didn't feel a QMS or Tektronix printer would give a suitably accurate image.

Instead, Greg Volan took the chart with the most colors and separated it with Adobe Separator and sent that file to a typesetter for film separations. To make sure VDA was on the right track with the color, he then had a Chromalin proof made at T & R Engravers in Denver.

The proof revealed two problems: a moire

pattern and an incorrect font. The moire caused lines to break on the chart's grid lines, but by increasing the sizes of the lines Greg Volan eliminated the problem. The incorrect font was due to a font ID conflict, so VDA updated its system fonts to match those of the service bureau.

Teamwork. All members of VDA's Altus project team worked simultaneously. When the technical writer delivered text, the designer flowed it into XPress. As Altus supplied financial data, it was brought into the

Illustrator charts. Laser prints provided handy previews for pages and artwork.

At the approval stage, VDA showed the client documents on screen. It also provided a laser print or color proof to make sure the screen representation was accurate. The client made changes on the spot and signed off on disk copies of the final files.

Another VDA method of producing client proofs is to make a Linotronic paper positive of a drawing, paste it on a board, and add marker color by hand, Greg Volan said.

"If we had a reasonably inexpensive color

PostScript printer, that would become an important part of our tool kit," he said.

From pre-press to press. The image-setter which would make VDA's Altus project files into negatives and paper positives was at Laser Writing Inc. of Englewood, Colo. "We're trying not to call them typesetters anymore," said Wendy Volan. "Obviously they're much more than that."

The book had two kinds of pages: text with no graphics, created in QuarkXPress; and charts with four-color graphics, separated with Adobe Separator. Since the charts could be generated in Illustrator there was no need to transfer those pages to XPress. However, all the page numbers had to be the same. So for consistency's sake, a file with all of the page numbers was created in XPress and later stripped in by the printer.

After VDA's staff checked the typeset output, it went to Frederick Printing of Aurora, Colo. Frederick took care of pre-press functions such as preparing color keys to make sure the right color information would end up on the right plate and printing blue lines for final copy checks. It then checked those blue lines for lack of continuity, improper pagination and other possible errors.

After last-minute checks were done, the printer burned the plates and began the print run. It was none too soon — the book had to

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Greg and Wendy Volan said that if they had used traditional methods on the first Altus project, it would have taken twice as long and cost twice as much.

be printed that day to meet the deadline.

But there was a problem. One shade of purple created an unintended moire pattern. Jim Holt of Frederick Printing's press department analyzed the images and discovered that there was a discrepancy between black and yellow, which were imaging at 150 lines per inch, and magenta and cyan, which were imaging at 154 lines per inch. The error in the yellow wasn't really visible, but the black was causing the moire. The problem was apparently created by Adobe Separator, although Greg Volan says the colors themselves were "right on the money."

VDA's "Band-Aid" solution was to redo the image on the Mac by altering the purple to eliminate its black component. Fortunately, Laser Writing was able to run the file through its imagesetter that day, while Frederick continued printing the other plates. It took an 18-hour day, but the printing got done and the deadline was met.

Post-project. Altus was so happy with the speed and quality of the book that it is now doing several new projects with VDA.

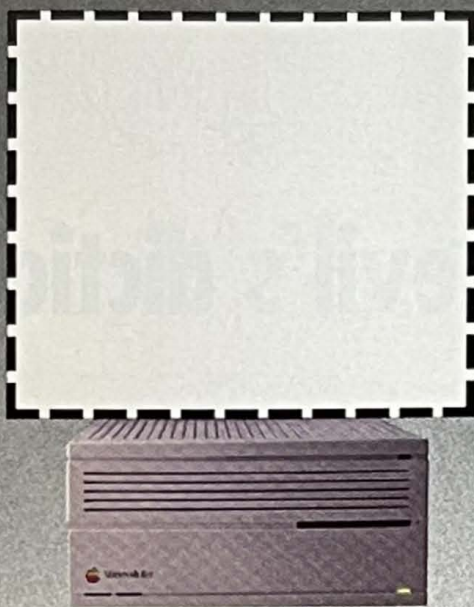
Greg and Wendy Volan said that if they had used traditional methods on the first Altus project, they would have been forced to go with simpler illustrations and the project would have taken at least twice as long and cost at least twice as much.

"And we feel the quality would be significantly less," said Greg Volan. "Because we're able to spend more time in the creative process, the quality of our design is improved." □

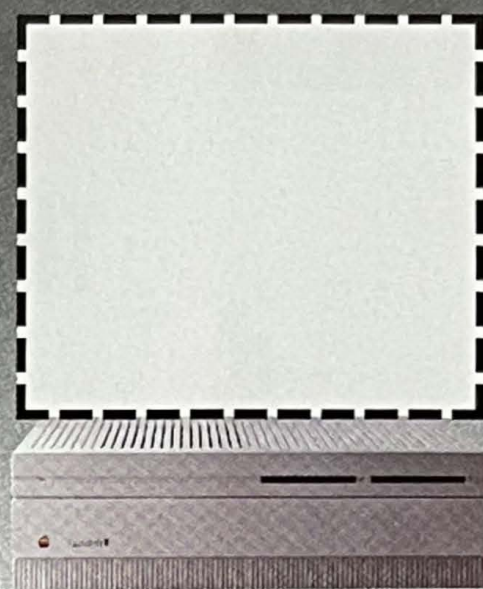
Jamie Krutz wrote "The song-and-dance Mac" in January's GA.



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II

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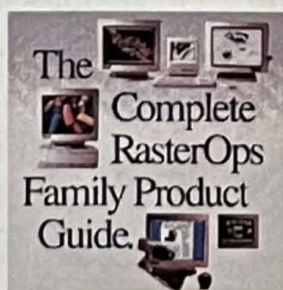


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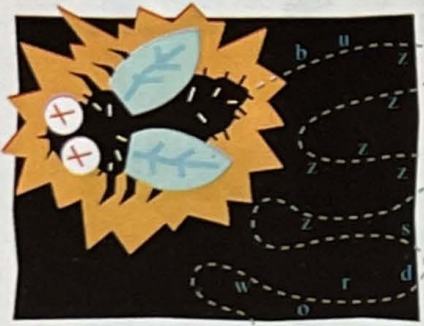
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desktop publishing

The devil's¹ dictionary, Part II

beta test, v. To voluntarily entrust one's data, one's livelihood and one's sanity to hardware or software intended to destroy all three. In earlier days, virgins were often selected to beta test volcanos.

bit, n. A unit of measure applied to color. Twenty-four-bit color refers to expensive \$3 color as opposed to the cheaper 25 cent, or two-bit, color that used to be available a few years ago.



ILLUSTRATIONS BY GORDON STUDER

buzzword, n. The fly in the ointment of computer literacy.

clone, n. 1. An exact duplicate, as in "our product is a clone of their product." 2. A shoddy, spurious copy, as in "their product is a clone of our product."

Comdex, n. An annual conference and exhibition for computer dealers. It is with no sense of irony whatsoever that these dealers gather in Las Vegas.

computer journalism, n. The art of rewriting press releases.

data acquisition, n. An original Salvador Dali print purchased for its investment value.

emulator, n. A curious, chameleon-like product that always appears to be something that it is not. Frequently confused with the crocodile.

encapsulated, adj. Pertaining to PostScript artwork that's been compressed and packed into an easily digestible format, as are vitamins and cyanide.

enhance, v. To tamper with an image, usually to its detriment.

genlock, n. Why he stays in the bottle.

guru, n. A computer owner who can read the manual.

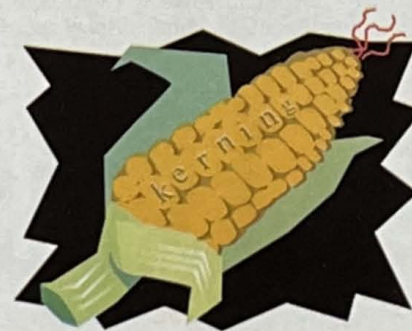
handshaking protocol, n. A process employed by hostile hardware devices to initiate a terse but civil dialogue, which, in turn, is characterized by occasional misunderstanding, sulking and name-calling.

hexadecimal, n. Winnie the Pooh's word for "elephant."

high-resolution, adj. The lowest resolution at which a specific display product will actually look good.

italic, adj. Slanted to the right to emphasize key phrases. Unique to Western alphabets; in Eastern languages, the same phrases are often slanted to the left.

Japan, n. A fictional place where elves, gnomes and economic imperialists create electronic equipment and computers using black magic. It is said that in the capital city of Akahabara, the streets are paved with gold and semiconductor chips grow on low bushes from which they are harvested by the happy natives.



kern, v. 1. To pack type together as tightly as the kernels on an ear of corn. 2. In parts of Brooklyn and Queens, N.Y., a small, metal object used as part of the monetary system.

modem, adj. Up-to-date, new-fangled, as in "Thoroughly Modem Millie." An unfortunate byproduct of kerning.

multimedia, n. An artistic extravaganza in which the audience risks total sensory anesthesia as opposed to mere boredom.

optical, n. One of four young rabbits who, along with Floptical, Moptical and Peter Cottontail, raided Steve Jobs' garden in search of lettuce.

optimize, v. When they're smiling, all the world seems bright and gay.

pixel, n. A mischievous, magical spirit associated with screen displays. The computer industry has frequently borrowed from mythology: Witness the sprites in computer graphics, the demons in artificial intelligence and the trolls in the marketing department.

prototype, n. First stage in the life cycle of a computer product, followed by pre-alpha, alpha, beta, release version, corrected release version, upgrade, corrected upgrade, etc. Unlike its successors, the prototype is not expected to work.



RAM, interj. An optimistic mantra chanted by meditating computer vendors, similar to the Buddhist "om."

revolutionary, adj. Repackaged.

screen angle, n. The correct way to photograph a film star.

solution, n. Product.

toner, n. One of the animated characters in "Who Framed Roger Rabbit?"

under color removal, n. In printing, the process of improving the appearance of an image by stripping away what's underneath, as pioneered by Frederick's of Hollywood.



Unix, n. A computer operating system, once thought to be flabby and impotent, that now shows a surprising interest in making off with the workstation harem.

Ezra Shapiro, a contributing editor to MacWEEK, is an admirer of Ambrose Bierce.

© 1989 Ezra Shapiro, from a forthcoming book.

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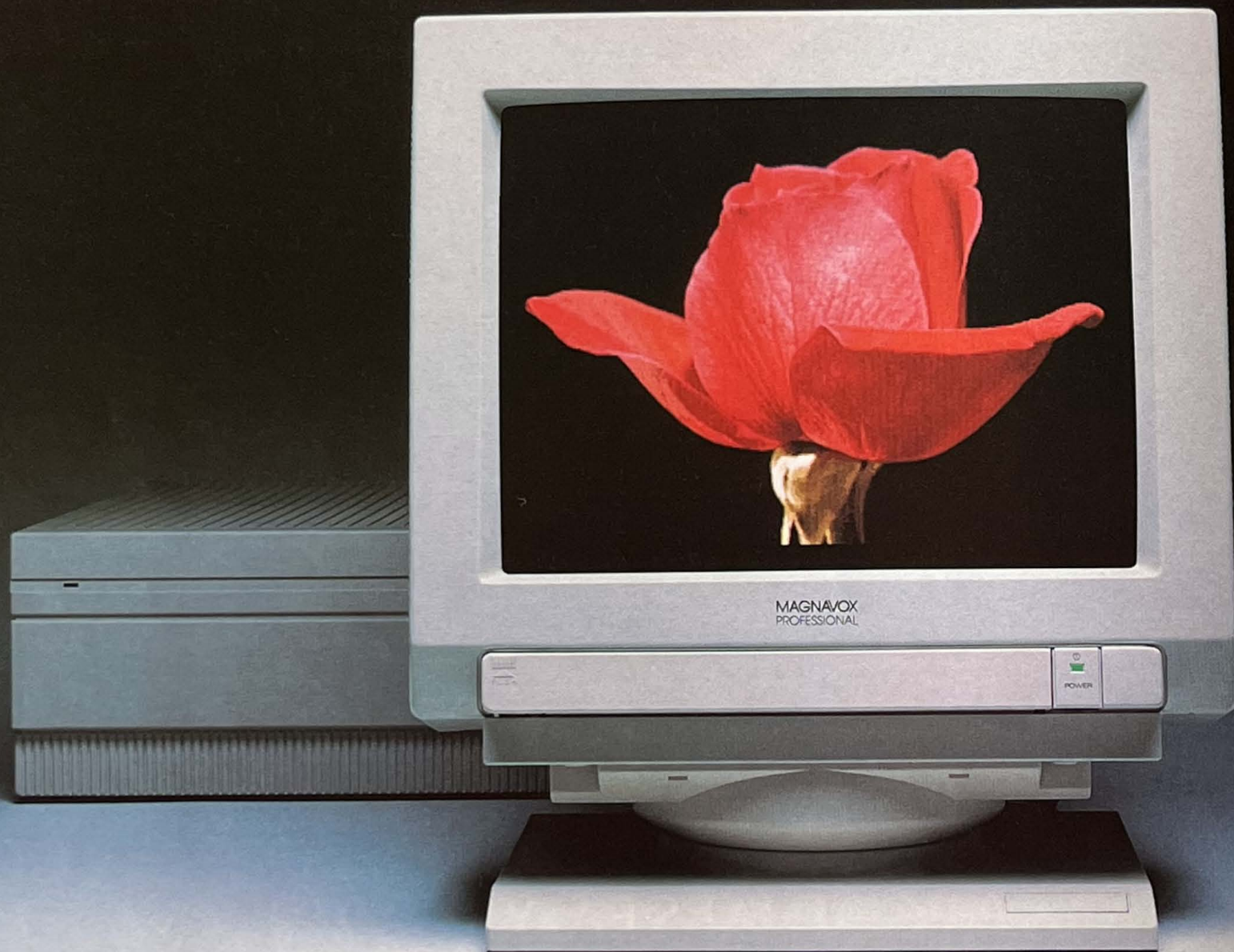
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JOHN HEISEY

Making sense of color monitors

Choosing a color monitor entails finding the right combination of size, resolution and cost for the job at hand.

By John Webster

Ever since the Mac II opened the door to color in early 1987, users have had a steadily increasing selection of color graphics subsystems (monitors and video boards) from which to choose.

Many people who are contemplating the purchase of a color system now have to determine whether price alone should be the deciding factor or if the kind of work being done on the Mac II affects the best system to buy.

While Apple has announced support for 32-bit color (see this issue's GA supplement, Page 56), the bulk of the color market is made up of eight-bit systems. With eight-bit systems, users can view 256 colors on screen from a palette of 16.8 million colors.

Sizing up the competitors.

Color monitors come in a range of sizes, from 13 inches to 19 inches or larger, and each jump in size brings with it a jump in cost. Moreover, larger monitors can weigh a whopping 70 pounds and take up a good chunk of desk space.

Apple's only color monitor is 13

inches measured diagonally. As with most Apple-brand products, it has strong user loyalty. John Gustavsen, vice president of landscape architecture company Carol Johnson Associates in Cambridge, Mass., uses a Mac II with Apple's 13-inch monitor to produce brochures.

"I feel very comfortable with the [13-inch screen]. Most programs have full-page preview capability and edit in full-page mode, so you can zoom in on details," he said.

Users seeking larger screens and higher resolution are turning to third-party manufacturers. Regardless of the label manufacturers put on the monitor, chances are it's a modified Sony.

Sony claims to own about 80 percent of the Apple third-party market. "Apple users are particular about what an image looks like. If they look for a third-party unit, they want [the color] to duplicate the [standard] Mac unit," said Clem Shemanski, director of sales and marketing at Sony Corp. in Park Ridge, N.J.

The ability to view two pages on a 19-inch screen is an asset for page and presentation designers such as

Curt Lowey Inc. in White Plains, N.Y. The company produces sales brochures for corporate clients as well as speaker support material that mixes graphics and photography. The Radius Color Display System delivers an ample work area for the in-house design team, said Curt Lowey, the firm's president.

"We wanted a double-page spread and color [rather than gray scale] to get an idea of what things will look like when they are output from a slide maker," Lowey said.

PhotoTime, a photographic laboratory located in Palo Alto, Calif., went the big-screen route with a RasterOps 19-inch monitor and video controller to show customers how a finished photograph will look after it is output by a Matrix film recorder.

"We really went with [a 19-inch monitor because] you see the whole image at once," said Mark Toal, PhotoTime manager.

The company has two Mac IIs, one with the standard Apple screen and one with the RasterOps system. Customers submit a file, usually in Power Point or PixelPaint format, which PhotoTime down-

loads to the ColorBoard-equipped Mac to ensure that fonts are the correct size for the film recorder and to preview the color quality. The finished print is compared with the screen image to match its color with the original.

Although Toal said he is "frustrated" by the limitations of eight-bit color with photographic output, he has yet to make the jump to the 24-bit capability of RasterOps' ColorBoard 104. Toal has opted to wait for the commercial availability of boards that support Apple's standard 32-bit QuickDraw.

Open the windows. Users of multiple-window application software are also apt to fill all the space within a 13-inch screen.

The San Francisco office of investment firm Hambrecht & Quist needs to support multiple window displays for its custom market data software program.

The software enables traders to look at stock exchange data and also view "continually updating windows" See Color, next page

Color *Continued from previous page*

showing stock prices, including bids and asks. There are also ticker windows, news windows and a window for interactive host applications," said Ian Hobson, information systems manager at H&Q. As a result, H&Q bought 16-inch color monitors from E-Machines for the 25 Mac IIs used by traders at the firm. The size avoids overlapping windows, which might obscure data underneath. The color makes it instantly apparent whether the value of a stock is rising or falling.

Programming, like other technical and scientific applications, represents another task that often needs a large screen.

Richard Blake, a research scientist at Batelle Pacific Northwest Laboratories in Richland, Wash., writes data acquisition software for use in his company's laboratory. Blake is developing the programming interfaces that will form the front end of a spectral analysis program. Batelle Pacific has three E-Machines display subsystems hooked up to Mac IIs.

"We needed a bigger screen for a programming environment [because on the 13-inch screen] things get very crowded very quickly," Blake said. "With the E-Machines [monitors], we have enough screen area to see both the application and the tools in a reasonably sized window. A 13-inch monitor gets unusable."

Besides size, another consideration to Blake is how well the monitors stand up to large doses of electrical interference — a fact of life when working around lasers. The E-Machines monitors are rated

with FCC Class B compliance, so they can withstand the laser interference, according to Blake.

Two can be better than one.

Some people can't get enough of a good thing. On the monitor front, for example, some users like to hook up two monitors to the same computer. Michael Backes, a computer consultant for Tech Noir in Beverly Hills, Calif., uses a 16-inch SuperMac display, a Spectrum/8 controller board and an Apple 13-inch monitor hooked up to a Mac II for producing motion picture animation. The dual-display system allows Backes to work with the software tools on the smaller screen and display the final sequence on the SuperMac monitor.

"After we've created all the models, I put representations of various views on the Apple monitor. When I want to see the final product, I put it on the SuperMac," Backes said.

WYSIWYG: Who needs it?

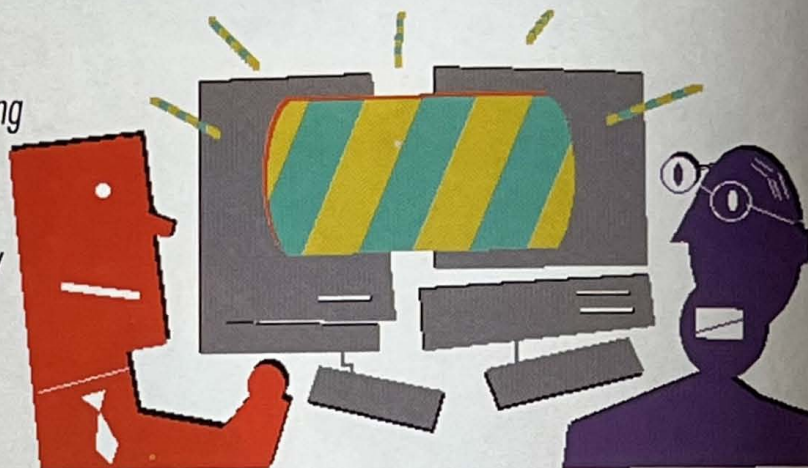
Color monitors are far from cheap, and the last thing people want is an expensive peripheral with a disappointing display. Ironically, ultra-high resolutions have little to do with on-screen clarity. That's because Apple's bit-mapping function assigns the same number of dots to an image of a given size, such as the letter "a" in a Times Roman screen font, regardless of the monitor and card combination that displays that image. As a result, a monitor with a higher stated resolution simply shows more information. And if the same amount of information displayed on a 19-inch monitor is seen on a 16-inch model, the image will be visibly smaller.

Steve Edelman, founder and

See Color, Page 92

Taking advantage of low-cost PC monitors for the Macintosh

Attaching multiscanning monitors to a Mac can be a great money saver if everything works as it should.



By John Webster

In the monitors market for IBM PCs and compatibles, models that feature multiscanning or multisynchronous capabilities have staked a claim. That's because the video market for IBM-type architecture is riddled with different video standards, so users want a monitor that can display the resolution and color capabilities of whatever software they are running.

Now, Mac users have discovered that an inexpensive serial cable lets them attach these same multiscanning monitors to a Mac II, IIx or IIcx. The advantage is clearly lower cost. Street prices on a 13-inch monitor can be as low as \$600.

There is one note of caution: Not all such monitors work equally

well with all video cards. As a result, users contemplating purchasing a Sony Multiscan, say, should first determine how well it works with their Spectrum board from SuperMac.

The advantage to buying an entire subsystem from a vendor like SuperMac Technology or RasterOps is ensured compatibility between the monitor and board.

Board makers are aware of the situation. Indianapolis-based Truevision, for example, acquires multiscan monitor test units from several manufacturers so it can recommend certain models to users.

"The matching isn't as critical in the lower 15-kHz to 35-kHz frequency range. [But] the reliability at higher frequency ranges can be

a problem," said Clayton Scates, senior design engineer at Truevision. "They can give you deviation around the edge of the screen in some models — it bubbles in or buckles out."

Most multiscan monitor vendors address the problem by including a list of compatible boards on a monitor specification sheet, said Jim Schwabe, director of marketing at NEC Home Electronics. NEC designed the first multiscan monitor, the MultiSync, and has since introduced five other models, as well as the fixed-frequency MacSync for the Mac II.

Users appreciate that versatile multiscan monitors can work with both Macintosh and IBM PC machines in a mixed-system environment.

"One reason for going with a high-resolution multiscan monitor is Mac and PC compatibility," said David Collins, an R&D engineer at Hewlett-Packard's opto-electronics facility in San Jose, Calif. Collins uses the Nanao Flexscan 9070, a 16-inch monitor that supports horizontal scan frequencies between 20 kHz and 50 kHz and vertical frequencies between 50 Hz and 80 Hz.

"I have [an NEC] MultiSync II on a Mac II and I also have an AT. I switch the monitor back and forth between the two quite a bit," said Mark Waterman, president of Chicago-based Waterman Design Inc. Waterman designs corporate logos, letterhead and communications material. "Cost was also a factor. The MultiSync was \$250 less than the [standard Apple 13-inch monitor built by] Sony," he added.

According to Ted Fukada, Nanao's technical and marketing director, multiscan monitors can offer a cost savings over bundled subsystems. "In the Macintosh market, third-party manufacturers supply expensive 16-inch and 19-inch high-resolution monitors, and you have to buy the controller from them. A user could buy a RasterOps 24-bit board and a multiscan monitor instead," he claimed. □

Tech Files

Peripherals will be on center stage at developers' conference

In less than two weeks Apple will convene its third annual developers' conference, proffering its strategic vision for the future and answering nitty-gritty questions about the present.

One of the hot topics on the agenda will be mass storage peripherals. Those who support such products say Apple has two opportunities for the future: improving performance (particularly a multitasking operating system) and providing support for foreign file systems.

The cornerstones of Macintosh peripheral performance are the SCSI Manager and related hardware. While SCSI has fueled the availability of a wide range of peripherals, its current performance is inadequate for larger disk drives and a true multitasking operating system.

At the core is the restriction that

all I/O transfers must be made by the processor. In its initial SCSI implementation on the Mac Plus, Apple tried to speed I/O by providing "blind" transfers. However, that version was extremely timing-dependent, so that Mac Plus blind transfers don't work reliably with all disk drives.

The SE, II and later machines include hardware changes that assure transfers are not made unless the data is ready. This also pushes the maximum SCSI throughput from 263 Kbytes per second on a Plus to 656 Kbytes on an SE. The Mac II is twice again as fast.

But unlike

most high-performance computers, the Mac doesn't provide direct memory access, which would allow special chips to perform data transfers without tying up the CPU. Third-party SCSI boards show that this can double the effective throughput of a Mac II to 3 Mbps.

While such performance is wasted on most of today's hard disks, it is sorely needed for 300-Mbyte and larger hard disks and for next-generation drives.

Also lurking on the horizon is the issue of multitasking performance. On a single-tasking operating system, tying up the CPU isn't all that important. But on a multitasking OS, the SCSI transmission wastes horsepower that could be used by other tasks.

More significantly, the Macintosh spends most of its time waiting for the disk head to posi-

tion, not transferring data.

First on every developer's wish list is modifications to the SCSI Manager and the hierarchical file system (HFS) that will allow asynchronous operation. This would enable disk drivers to sort disk accesses by position on the disk, as has been done for two decades on larger computers. Such sorting would speed up some tasks twofold to fivefold. For example, you'd see an increase when the Mac rebuilds the desktop after a crash, a task that can now take 10 minutes on an optical disk.

Apple's other opportunity lies in reading and writing non-Mac disks. As with most computers, the Mac has its own standard disk format. Unlike many other such formats, HFS can also be extended to support other disk formats, thus allowing the Finder and applications to

See West, Page 94



BY JOEL WEST

**In 1986 E-Machines
decided that when
it came to
Macintosh displays,
Apple didn't quite
stack up.**



In 1989... nothing has changed.



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Steve Vollum
President
E-Machines

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The Big Picture IQ™
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Color

Continued from Page 88

chief scientist at SuperMac Technology, said manufacturers exhibit two schools of thought. One side subscribes to the manufacture of "true WYSIWYG" displays and continues to offer 72-dpi dot density. The other reduces the image to get more pixels on screen.

Manufacturers of subsystems for Mac IIs that provide 72 dpi to 75 dpi to maintain a direct correlation between screen images and output images include Personal Com-

puter Peripherals Corp. and MegaGraphics. Other manufacturers offer products with dot densities ranging from 82 dpi to 88 dpi, which allows more of an image to be displayed on screen.

For example, the Radius Color Display System offers a dot density of 82 dpi on a 19-inch screen. Although more pixels allow users to view two full pages on the monitor, the fonts and images on a document are shrunk slightly. So there is generally a trade-off; users can opt for true WYSIWYG and a cropped view of an image, or for a

compressed but complete view of an image.

"The strong advantage of [on-screen] WYSIWYG is [how it divides] into the 300-dpi of a laser printer. The pixel density causes a consistent image and font size," said Diane Scott, vice president of marketing and sales at MegaGraphics.

At 75 dpi, the MegaGraphics systems are intended primarily for desktop publishing applications, where users prefer exact representations of an on-screen document.

On the other side of the coin, higher dot densities offer a crisper image. E-Machines'

16-inch TX system displays 85 dpi. That density "shrinks down type, but with scanned images users see a clearer image and the curves are smoother [than with 72-dpi resolution]," said Dave Tait, director of marketing at E-Machines.

Refreshing weary eyes. Another specification that prospective buyers should consider is the vertical scan frequency, or refresh rate. Measured in hertz, the refresh rate indicates how many times per second the screen image is redrawn by the electron beam in the monitor.

Anyone who looks at a monitor under the glare of fluorescent lighting for long periods may notice a pronounced flicker. This is caused when the refresh rate of the monitor conflicts with the frequency of the lights, which run at a 60 Hz. As a rule, the higher the vertical refresh rate of the monitor, the less noticeable the screen flicker.

Apple's standard monitor has a refresh rate of 66.6 Hz, according to vendors. At 67 Hz, E-Machines' T16 monitor offers a "very, very sharp picture. We haven't had problems with people who are looking at them for eight hours a day," said Hobson of Hambrecht & Quist.

A number of vendors offer monitors with refresh rates as high as 72 Hz, further reducing screen flicker.

Don't forget the software. As in any crowded market, vendors look for ways to differentiate their subsystems from others. In this case, that differentiation occurs with the software provided in the video controller's ROM.

For example, Radius offers tear-off menus that let users place commands anywhere on screen. The software includes features that enlarge menus, and it allows users to save any portion of an image in a separate file. E-Machines provides a customized control panel containing mouse-controllable brightness, contrast, image-magnification and screen-dimming controls.

Straddling the PC market. The add-on market for IBM PCs and compatibles is so large and competitive that prices for most products can seem like a bargain to Mac users.

For a relatively low-cost alternative to 19-inch Apple-specific subsystems, some users are scouring the PC market for products that support the Mac II as well as IBM-compatible systems.

For example, Intecolor Corp. manufactures a fixed-scan 20-inch display called the MegaTrend/2, which works with the standard Mac II graphics controller and retails for \$2,395. Monitors sold by manufacturers of Apple products range from approximately \$3,000 to more than \$4,000.

Although the image produced by the MegaTrend/2's comparatively low 60-Hz refresh rate and 64-dpi density is fuzzier than those of its more expensive Apple brethren, one user claims it's a worthy alternative.

"Part of why we went with the [Intecolor] monitor was a need for a bigger screen," said Richard Duggan, curator of exhibits and graphic design at the New England Aquarium in Boston. "It has a sharp picture and good color. It's an excellent monitor at 640-by-480-pixel resolution."

The Aquarium uses the hefty display and a Mac II as an interactive game exhibit.

Obviously, users wanting to buy an eight-bit color system can choose from numerous options. And as with buying any expensive item, the adage "try before you buy" definitely applies to the color monitors market. □

John Webster is a free-lance writer based in Boston.

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IMPRIMIS

A Subsidiary of Control Data



West

Continued from Page 88

read those disks as if they were a Mac disk.

One such extension is the Apple Filing Protocol, in which the AppleTalk network is used to access a remote disk, even one that is hooked to a DOS or VAX/VMS computer.

Apple already supports read-only direct connection of one foreign file system on its CD-ROM player, with a Startup document (INIT) that allows any Mac program to read a High Sierra CD-ROM using HFS calls.

Similarly, a read/write HFS foreign file

system for MS-DOS would let users take full advantage of the 1.4-Mbyte SuperDrive included in the new Macs. Today, users can only read and write DOS disks using the separate Apple File Exchange.

Apple already has a prototype of the necessary software but hasn't released it yet. Why not?

One possible argument is that Apple's distribution of the software would threaten large installation sales, even though third parties already provide this capability. How is it a threat? When one or two users need a

Macintosh (such as for desktop publishing), Apple usually sells machines to the entire work group. If those few machines could easily read and write DOS floppies, the argument goes, perhaps MIS would buy all the other users cheaper PC clones.

I, for one, don't buy it. For example, the Mac's training advantages are as strong as ever.

But until Apple sees this as more of a user advantage than a sales disadvantage, this is one piece of extremely useful technology that will remain locked up in the lab. □

Product Info

Apple

13-inch color monitor: \$999;
eight-bit video card: \$648
20525 Mariani Ave.
Cupertino, Calif. 95014
(408) 947-2042

E-Machines Inc.

Eight-bit color card
and monitor subsystems:
T16: \$3,595; T19: \$6,195
TX: \$4,495; C20: \$5,295
9305 S.W. Gemini Drive
Beaverton, Ore. 97005
(503) 646-6699

Intecolor Corp.

MegaTrend/2: \$2,395
2150 Boggs Road
Duluth, Ga. 30136
(404) 623-9145

MegaGraphics

2008 (for the Mac II) eight-bit controller:
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Nanao Flexscan 9070: \$1,699
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Torrance, Calif. 90505
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MacSync: \$899; MultiSync 3-D: \$1,049
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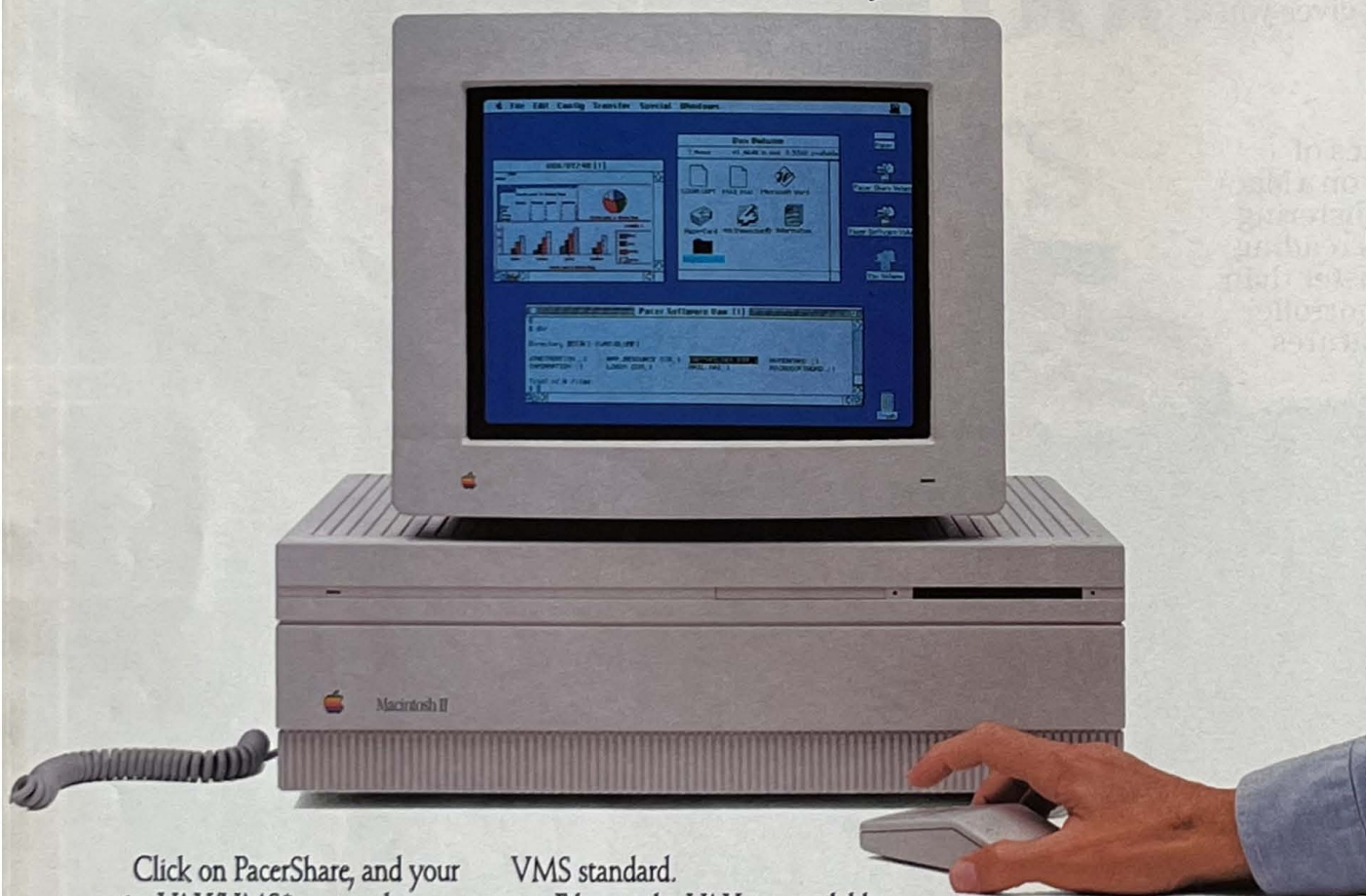
RasterOps Corp.

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16-inch monitor: \$4,490
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SuperPaint 2.0: Is it still super?

More features, but others do it better



SuperPaint 2.0

Silicon Beach Software Inc.
9770 Carroll Center Road, Suite J
San Diego, Calif. 92126
(619) 695-6956

List price: \$199; \$50 upgrade for registered owners; educational discounts available.

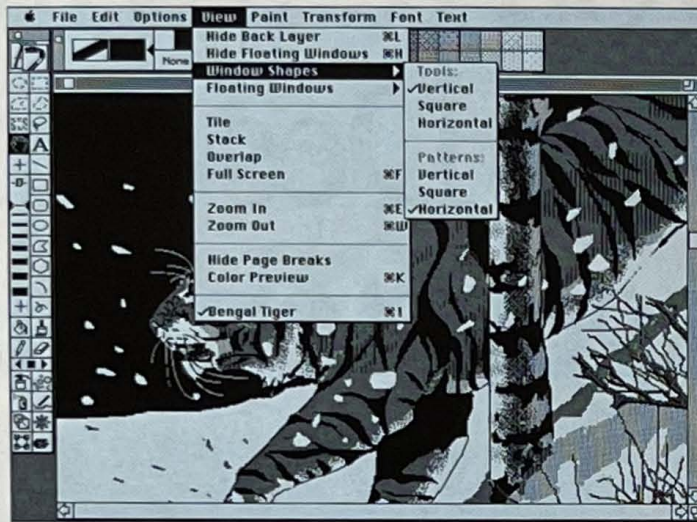
✦ Easy to learn and use; good new AutoTrace and Freehand Bezier tools; features extensible via plug-in modules; good manual.

✦ Allows just eight colors, which are viewable only in a non-editable mode; sluggish response to mouse clicks in draw layer; no on-line help; emphasis on painting rather than drawing; extra features make it less suitable for most business users.

By Dennis Klatzkin

There was a time when early versions of MacPaint, FullPaint, MacDraw and MacDraft represented the state of the art in Mac graphics. When Silicon Beach Software introduced SuperPaint back then, it was widely praised for combining the essential painting and drawing features in an easy-to-use package.

Both the program's graphics modes, when considered separately, really didn't provide more function-



SuperPaint 2.0 allows users to choose the shape and orientation of its tool and pattern windows, but the palettes always seem to take up a great deal of screen real estate.

ality than current applications. The object-oriented drawing half, especially, offered less in comparison with its stand-alone counterparts. Instead, it was SuperPaint's easy merging of the painting and drawing media that made it a hit.

Now SuperPaint 2.0 attempts to augment both its graphics faces while maintaining its position as a very approachable entry-level product. On that basis, Silicon Beach Software has succeeded. But considering the Mac's expansion into more and more sophisticated business markets and some very formidable competition from Deneba Software's Canvas 2.0, is SuperPaint still "super" enough to remain a contender?

What's new. Entry-level users, feature-hungry with 1989 expectations, won't be disappointed with SuperPaint 2.0. It can now claim most of the amenities requisite for respectable low-end painting and drawing programs these days. And its authors have thrown in quite a few advanced bells and whistles for good measure.

The most notable additions to SuperPaint 2.0 include a Freehand Bezier tool for precise drawing and editing of irregular shapes and an excellent AutoTrace command for creating draw-layer (vector graph-

ic) tracings of Paint format (bit-mapped) art. SuperBits have replaced the LaserBits of the older SuperPaint. They allow you to edit bit maps of any size in the drawing layer at high resolutions.

SuperPaint 2.0's painting toolbox now has a customizable airbrush and some new special-effects modes. Text objects in the drawing mode can contain mixed fonts, sizes and styles. Both graphics layers have new transformation commands to scale, tilt and freely rotate objects, including text. And the program's "plug-in module" technology allows for the addition of new paint tools and commands, although creating custom modules is beyond all but the programmers among us. Some of the modules supplied with SuperPaint are useful; others are pretty trivial.

The new SuperPaint also sports a Multigon tool, new selection tools, an arrowhead editor and a dashed-line editor, among a long list of feature additions. It can export bit maps as one-bit tag image file format (TIFF) files and Bezier objects as Adobe Illustrator documents. Like its predecessor, it can open and save files in MacPaint and Startup Screen formats. SuperPaint 2.0 now uses the PICT2 file format as its standard but can

Continued on Page 98



The Week in REVIEWS

Save your work with AutoSave II

AutoSave II from Magic Software, an update of the original AutoSave, accommodates new machines, systems and MultiFinder. This Control Panel device (cdev) automatically issues the Command-S keyboard sequence (or any other sequence you desire) at intervals of from one to 99 minutes. Since most programs use Command-S for Save, the application is very valuable for those who forget to save often.

However, there are a number of anomalies that may make using AutoSave an annoyance. For instance, if you open a template file, you must remember to immediately save it with a new name or you'll lose your template with the first auto-save. This caveat applies to any file that you don't want to change but would rather save in a different form. Also, the program doesn't work properly with FullWrite Professional, MacPaint 2.0, Microsoft Word 1.05 and programs without a Save command.

AutoSave II does include a feature that allows you to exclude specified applications from auto-saving, so incompatible programs can be bypassed. You'll also probably want to exclude programs like MacTerminal and Red Ryder, where saving is usually not needed. We would like to see a feature that lets you specify exactly which programs you want AutoSave to work with, thereby making sure to avoid problems with desk accessories and other non-standard applications.

If you can live with the limitations, AutoSave II is an excellent safety net. Magic Software offers to install Command-S keyboard shortcuts in applications that lack them for \$5 each. AutoSave II retails for \$49.95. Magic is located at 1602 Cascio Drive, Bellevue, Neb. 68005; (402) 291-0670; (800) 342-6243.

POWERmenus puts your menus where your mouse is

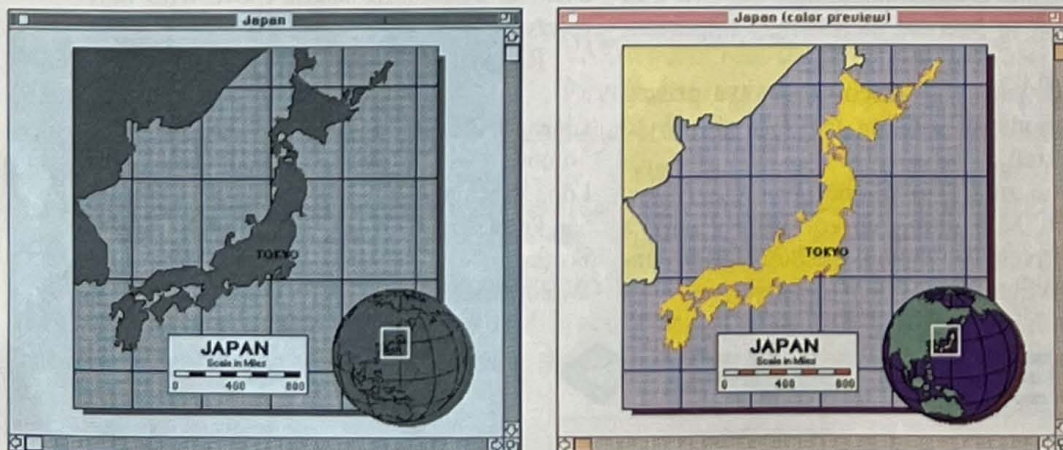
POWERmenus is a second utility from Magic Software that pops up menus wherever your mouse is positioned. A vertical list of all menus in the current menu bar is presented, along with a number of "gadgets" that do things like set alarms, dial your modem, take notes and switch windows (even MultiFinder windows). But the best part of POWERgadgets is its ability to add DAs and cdevs to the pop-up menu. It's a real convenience to be able to access the most-used DAs and cdevs in one menu.

POWERmenus is invoked with a customizable combination of keyboard commands and mouse-clicks. It works with virtually all applications and system configurations, and Magic provides a helpful troubleshooting guide in the manual. We really like this program, especially for use with large-screen and multiple monitors, where it can be difficult and time-consuming to move the mouse to the menu bar. The gadgets add tremendous value to the \$79.95 package; the modem dialer and alarm features are equivalent to separately available packages. We only wish that Magic would add an application-launching utility like On Cue from ICOM Simulations to the toolbox.

HyperTalk according to The Waite Group

The Waite Group has released two very impressive tomes on HyperTalk. The first, "The HyperTalk Bible" by Mitchell Waite, Stephen Prata and Ted Jones, takes a textbook approach, covering each command in detail with examples, review questions and even exercises. A floppy disk of examples from the book can be purchased separately. The second book, "Tricks of the HyperTalk Masters," edited by The Waite Group, covers advanced topics such as telecommunications with HyperCard, animation, visual effects and performance enhancement. The examples, available on disk, are full-blown applications written in HyperTalk and are the most valuable parts of the book. Both books cost \$24.95 and are published by Hayden Books, a division of Howard W. Sams, 4300 W. 62nd St., Indianapolis, Ind. 46268; (800) 428-3858.

— By Becky Waring



While editing in SuperPaint 2.0, you can't view the colors assigned to objects — and in color preview mode, you can't use any editing tools.

WHEN YOUR PEOPLE HAVE SO MANY DIFFERENT COMPUTERS TO CHOOSE FROM, WHERE DO YOU DRAW THE LINE?



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Continued from Page 96

import any PICT, one-bit TIFF or SuperPaint 1.0 or 1.1 document. However, if you open a full-color PICT2 file created in another application, SuperPaint 2.0 is unable to use its color information; the file is presented as black and white.

Don't let the PICT2 format lead you to think there are any high-end color capabilities in SuperPaint 2.0. Although Silicon Beach threw in the capability to assign one of eight basic colors to draw objects (or to the entire paint layer), you can't view the colors

on screen unless you're in a special Color Preview mode, in which you can't perform any editing.

Performance. SuperPaint 2.0 requires a Mac Plus or later CPU with a second floppy drive or a hard disk and System Release 6.0 or later. Its suggested default MultiFinder partition is 700 Kbytes.

Although we encountered no serious problems in testing SuperPaint 2.0, we did notice that its responsiveness to mouse clicks was quite sluggish, even on faster Macintosh

models. In a drawing with more than a few separate objects, there's a lag between the time you click on one and the time it becomes visibly selected. If you're Shift-clicking to select multiple objects, screen updating falls woefully behind your selections and confusion reigns. Anyone who's grown accustomed to the relatively crisp responsiveness of Canvas 2.0 or Claris Corp.'s MacDraw II will find handling SuperPaint 2.0 a bit disturbing.

Another unwelcome addition to SuperPaint 2.0 is toolbox clutter in the paint-layer tool

palette. Although you can now select the shapes of the tool and pattern palettes, they remain unattractive in every orientation and seem to dominate the screen. We suspect that users with multiple monitors will better enjoy the flexibility with which they can rearrange the tool, pattern and coordinates palettes.

We found SuperPaint 2.0 easy to learn and use, as advertised. It's lost the sheer simplicity of the earlier version, but that's to be expected in a program that bears so many more features.

But it's inevitable that SuperPaint 2.0 will be held up to Deneba's Canvas 2.0 for comparison. They're both mixed painting and drawing applications that fall toward the lower end of the price spectrum.

In almost every aspect of interest to business users, SuperPaint comes up short. Canvas offers an unlimited number of layers, while SuperPaint offers only two. Canvas allows 16.7 million colors in a fully editable view, but SuperPaint offers only eight colors that can't be edited while visible. Canvas incorporates better precision, resolution, object information and control. It has a host of features that appeal to users who want the power of CAD programs and some good touches from layout programs as well. And it has a very good on-line help system.

SuperPaint 2.0 seems rather Spartan in contrast to Deneba's program, although it's not entirely without feathers in its cap. Unlike Canvas, it autotraces to true Bezier objects and has a dashed-line editor plus the new plug-in module technology among a list of its unique highlights.

Documentation and support. SuperPaint's new three-ring-bound manual is well-thought out and handsomely packaged. There's a very good tutorial, an excellent reference section, a quick-reference card, supporting appendices and a decent index. Potential buyers should regard the manual as very important because this program — promoted, as it is, for ease of use — has absolutely no on-line help. We think this omission verges on the unforgivable.

Silicon Beach Software offers unlimited free technical support to its customers, although the telephone calls aren't toll-free. We found the quality of the support to be competent and friendly.

Conclusions. SuperPaint 2.0 is a worthy upgrade of its forebear but, true to its roots, proves stronger as a painting medium than as a drawing environment. In contrast, Canvas 2.0 is essentially a strong drawing program with basic paint tools added. We think that, taking into account all the comparisons and trade-offs, Canvas earns higher price/performance marks and will be considerably more functional and versatile in typical business usage.

For business and personal users who have limited graphic objectives and want a simple, inexpensive, approachable program, SuperPaint 2.0 is a good value. Silicon Beach's \$50 upgrade offer for users of prior versions of the program (including those who received SuperPaint 1.1 bundled with Microsoft products) is a bargain.

But we don't think that SuperPaint 2.0 is the program of choice for anyone whose needs go beyond the black-and-white basics. There are more-suitable alternatives for the great majority of business and professional users. For the rest, especially artists looking for paint features, SuperPaint 2.0 is a nice program, but "super" is too strong a word. □

Dennis Klatzkin is a San Francisco-based writer and consultant and a MacWEEK contributing editor.

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+ Long warranty; inexpensive; compact; cdev turns cache on and off.

- Incompatible with A/UX, 68851 PMMU and MPW 2.0.

By Ric Ford

Mac II owners envious of the newer IIX model's performance now have an inexpensive alternative to Apple's costly upgrades. Orchid Technology's MacSprint II brings Mac II performance up to par with the IIX without changing processors or clock rates. The unique MacSprint is basically just a static RAM cache contained on a compact daughterboard.

Performance. Surprisingly, Apple has never incorporated a static RAM cache in its Macs, although the performance benefits have been proven by companies like Radius, DayStar Digital, Levco and Siclone.

The 68030 processor used in the IIX, IICx

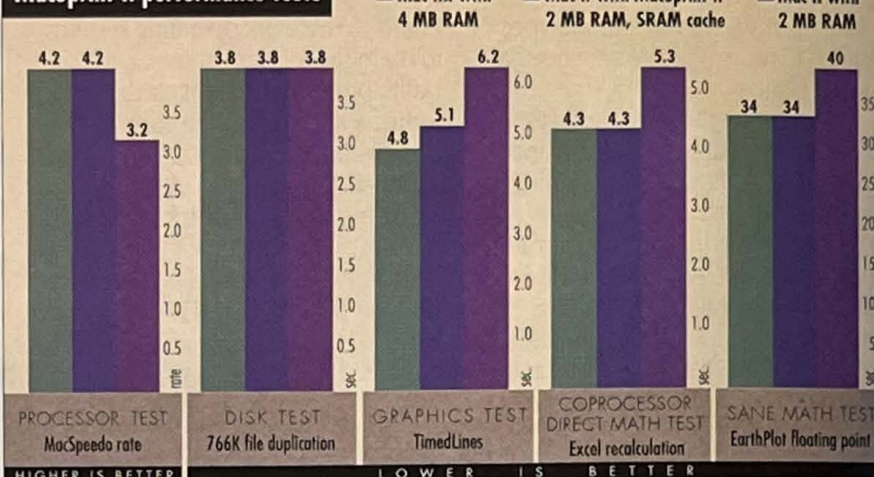
and SE/30 has tiny caches built in, but their small size makes them effective only for certain specific tasks. The larger cache of the MacSprint II board has broader applicability, while falling slightly behind the peak speed of the 68030's on-chip caches.

These fast caches reduce the average time that the Mac's main processor has to spend waiting for data to be retrieved from memory. When a piece of data has been recently accessed, you can retrieve a copy of it immediately from the cache instead of waiting for access to regular motherboard memory.

The result is that some operations run much faster than on a normal Mac II, while others are unchanged. Our tests showed overall performance with MacSprint II almost identical to that of a Mac IIX, about 15 percent to 20 percent faster than a regular Mac II. According to Orchid, MacDraw screen operations and AppleShare client performance will show the most speed gains.

Compatibility. The current Orchid software is not compatible with either A/UX or a 68851 paged-memory management unit (PMMU). The company is working on a fix for the PMMU incompatibility, but A/UX support is a more difficult problem that will not be resolved quickly. Orchid reported that Apple's MPW 2.0 programming environment crashes with MacSprint II but said MPW 3.0 works successfully.

MacSprint II performance tests



All CPUs used Apple color monitor set at 1-bit black and white with System 6.0.3.

We encountered no compatibility problems in our testing, and the cache can be turned off as a temporary work-around for any problems that might turn up (except for A/UX).

Installation. MacSprint II consists of a compact daughterboard that fits into the Mac II's 68020 processor socket and a cdev (Control Panel device) that turns it on and off. The 68020 is moved to a socket on the daughterboard, and there is room left for a full-height hard disk after installation.

Installing the board is a job best left to experienced technicians, and the cheap chip-removal tool provided in the kit is nowhere near as effective as others we've seen.

Support. Orchid offers an exceptionally good warranty on MacSprint II: two years on the hardware, with an extra two-year extension when you return the product registration card. There is no software warranty. Telephone support is not toll-free, and documentation is limited to a clear installation guide.

Conclusions. MacSprint II is one of those rare products that does exactly what its manufacturer claims. If you need to squeeze a little extra performance from your Mac II, MacSprint produces it.

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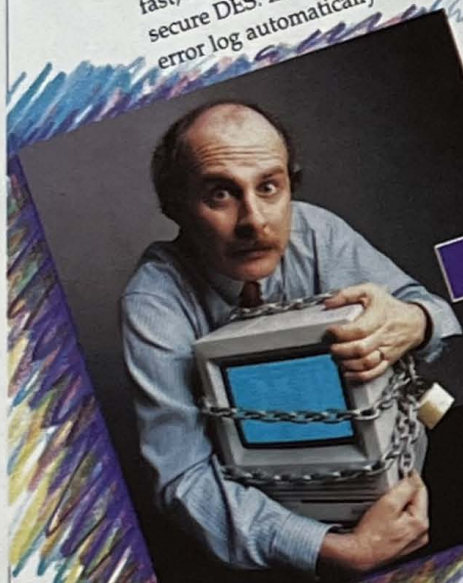
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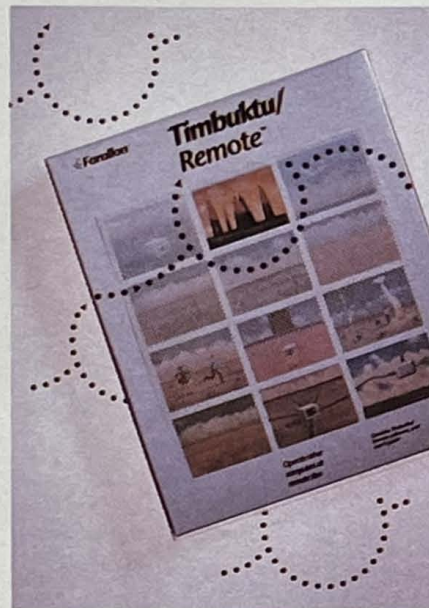
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- Documentation short on detail; sluggish performance with some software; limited security options.

By Bernard Aboba

Nowadays, the Mac has a wide array of software for file sharing, print spooling, electronic mail, and Mac-to-mainframe or Mac-to-minicomputer links. But one major gap has remained in the Mac-to-Mac connectivity arsenal. This is in the area of remote-control software. In the IBM PC arena, remote-control software typically allows users to call into their PCs using a modem and to control other PCs over the phone lines, including (with some difficulty) programs running in EGA mode. The genre also typically provides file transfer features, multiple security levels and password protection.

WOS Data Systems, now merged with Farallon Computing, authored the Mac's first remote-control program, Timbuktu. Timbuktu allows a Mac to control another Mac over AppleTalk. For an encore, Farallon has introduced Timbuktu/Remote, which allows one Mac to control a remote Macintosh via modem and to transfer files between them. Timbuktu/Remote can also be used without a modem by substituting a null-modem serial cable.

There are many potential applications for Timbuktu/Remote. Among the possibilities are support for customers at remote locations, debugging "headless" servers without keyboards or screens, using your fastest Mac as a compute server, accessing remote databases or using a Mac as a common bulletin board for files and messages.

Timbuktu/Remote consists of a Startup document (INIT) and a desk accessory. The DA contains a phone book as well as controls for setting security level, passwords and communications parameters. An on-line help system is available that details each of the choices. No terminal emulation or scripting capabilities are provided; Timbuktu/Remote is meant only for manual use between Macs.

Knock, knock ... Timbuktu/Remote allows for easy interconnection of Macs with differing screen geometries. When a Mac II calls a Mac Plus, for example, the Plus' screen is shown in a corner of the larger Mac II screen. When a Plus calls a Mac II, the larger screen can still be viewed via an automatic panning mechanism.

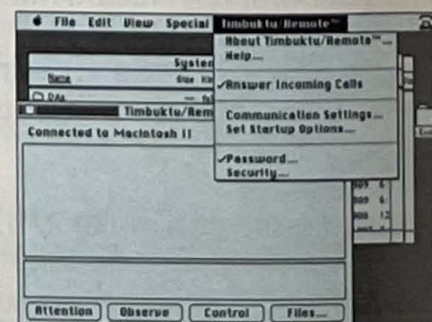
To provide a caller with acceptable screen response times, Timbuktu/Remote transmits QuickDraw commands whenever possible. Some applications, however, write directly to the screen, in which case Timbuktu/Remote must check for changes in pixels and transmit those. This method slows screen refresh considerably.

The key variable in performance seems to be whether the application requires frequent screen updates. If so, Timbuktu/Remote will bog down. For this reason, use of Timbuktu/Remote with animation programs is not recommended. Timbuktu/Remote displays screens only in black and white, so a host Mac II should be set to black and white with two gray levels.

Since Timbuktu/Remote does not transmit sounds or musical instrument digital interface (MIDI) port output, use of music software is generally not feasible. However, the Mac is such an audio-visual machine that it is virtually impossible to do away with all animation and audio effects, which are often present in application start-up screens, About boxes and HyperCard stacks. Encountering an unexpected flash of animation can result in bottlenecks as Timbuktu/Remote struggles to transmit the rapidly changing screen bits. In particular, redrawing the screen for a new card picture in HyperCard can take as long as 30 seconds.

The large majority of software we tested works with Timbuktu/Remote, although there are some exceptions. Remote use of MacWrite 5.0 is problematic. We found that we could outrun the program while typing continuously, so that keystrokes were lost. SoftPC 1.2 causes Timbuktu/Remote to lock up and lose the carrier when it is remotely executed. On the other hand, performance in Microsoft Excel is very

See Timbuktu, Page 104



Farallon's Timbuktu/Remote allows users to observe or control the remote Mac as well as to exchange files.

Screen Recorder: A boon for creating visual presentations

Screen Recorder

Farallon Computing
2201 Dwight Way
Berkeley, Calif. 94704
(415) 849-2331

List price: \$195

- ✦ Clear and simple interface; excellent compatibility with other software; generous licensing terms for PlayScreen XCMD; very good tech support.
- ✦ Limited editing options; no sound-synchronizing capability; desk accessory is copy-protected.

By Bernard Aboba

Screen Recorder is a utility designed to make "tapes" of any Macintosh screen session and to allow those tapes to be played back, either in the Screen Recorder program itself or within a HyperCard stack. Screen Recorder is not a macro program; when the tapes are played back, the actions do not take place again, they just appear on screen again. Tapes may be replayed without the original application.

The package consists of the Screen Recorder desk accessory, the PlayScreen HyperCard external command (XCMD), a "guided tour" disk and a users' guide. Installation is easy and can be accomplished either via an installer script or through the Font/DA Mover. Although the program is not complicated, the users' guide provides thorough and complete instruction. The program is so straightforward that experienced Macintosh users can dispense with the guided tour.

The interface to Screen Recorder is simple and mimics that of a tape recorder, with buttons for Record, Pause, Stop, Eject and Play. Several playback options are supported. You can slow down or speed up the tapes on playback; tapes can be replayed instantly or saved in a file; and the "auto-repeat" function allows for continuous playback, as might be required for a demonstration or information kiosk.

Several tapes can be strung together through use of the PlayScreen XCMD, and sounds recorded with the MacRecorder Sound System may be played, producing an audio-visual presentation. Screen Recorder will be a boon for those interested in creating HyperCard-based tutorials for their products, for producers of instructional videos or for anyone requiring canned demos.

Screen Recorder's recording options are limited, and it would be helpful if the application included more editing functions, such as allowing for the splicing and reassembly of portions of a tape or the synchronizing of a tape with sound. The manual recommends that users plan the activities they want to appear on the tape so that pauses spent deciding what to do next are avoided. Without editing functions, however, screen sessions are still likely to require several re-recordings to get them just right. Although the Looping Tape option provides for continuous recording, allowing the user to repeat the

See Recorder, next page

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Recorder

Continued from previous page

action without stopping and restarting the program, more editing help is needed.

The Screen Recorder DA is copy-protected, although the PlayScreen XCMD is not, and stacks using it may be distributed under the terms of the license. Screen Recorder is compatible with the line of Farallon products, including Timbuktu, Timbuktu/Remote and the MacRecorder Sound System. By itself, Screen Recorder has no sound capabilities.

When used with Timbuktu or Timbuktu/Remote, Screen Recorder could prove useful in instructional settings where it might be desirable to have all participants view the same screen. Performance with Timbuktu/Remote is variable, however. With applications such as HyperCard that redraw the screen with the display of each new card, it may not be possible to play back the tape at the same speed at which it was recorded. On the other hand, applications such as Excel typically present no problems. □

Timbuktu

Continued from Page 102

good, as it is — surprisingly — in Paracomp's Swivel 3D.

Remote communications packages are typically used for short periods of time. For example, a manager out on the road might want to dial into the home office, look up a price in a database, download a file or two, leave a message and log off. An average session is likely to take less than an hour. In these situations, Timbuktu/Remote's ease of use is likely

to be a great convenience, while the speed limitations will be less important.

Modem here, modem there. The Farallon program comes with settings for the following modems: the Hayes Smartmodem 2400, Smartmodem 9600 and V-Series Smartmodem 9600; Microcom's QX/V.32c, QX/12K and AX/9624c; Telebit's Trailblazer Plus; AppleFax Modem and U.S. Robotics' Courier HST. It also has a setting for a "generic modem" and should be able to handle standard V.32 modems. The options appear to support most common low- and high-speed modems.

We tested two popular 9,600-bps modems: the Hayes V-Series and U.S. Robotics' Courier HST. In file transfer tests, as well as in remote control, the Hayes V-Series performed noticeably better, achieving file transfer rates averaging 850 bytes per second to 900 bytes per second, while the HST was only able to achieve rates of 800 bytes per second. The DIP switch settings in the Timbuktu/Remote manual for the HST appear to cause problems in some circumstances; if your modem is unable to dial out, try adding AT&F&X6S7=60 to your init string.

Given that optimization of the transfer rate on the HST is somewhat of an art, it is possible that the transfer rate could be improved by modifying modem init strings or parameter RAM settings. The Timbuktu/Remote manual sheds little light on this admittedly minor issue, but there is one major omission as well.

Midnight caller. The manual does not discuss operation of Timbuktu/Remote on Mac IIs, and several complications arise in this situation. Timbuktu/Remote does not fully support control of a Mac II with more than one monitor; only the primary screen will be visible. Also, use of color or a non-standard background pattern will result in significant speed penalties. To Farallon's credit, technical support is readily accessible and gave sound advice on how to operate the software on a Mac II. Still, this information should be included in the manual.

Security options are also limited. Levels of access are Observe, Control and Observe, or neither. In Observe mode, a remote caller can look at the goings-on on the remote Mac but cannot affect them. In Control and Observe mode, a caller can operate and observe the remote Mac. If neither is selected, only file transfer is enabled. For file transfers, callers may be given read, write or delete permission or some combination of these. Only one password is allowed, so all remote callers must be given the same level of access.

Conclusions. Timbuktu/Remote is copy-protected in a relatively painless manner. The software can be copied without problems, but separate versions must be used to call out and to answer the phone. If you want to connect to other Macs on a network, you will also need a copy of the regular Timbuktu.

Farallon tech support is easy to reach and knowledgeable about the program. This is fortunate, because the Timbuktu/Remote manual is somewhat skimpy, and users may need the assistance.

Timbuktu/Remote has a very simple interface and is genuinely easy to use. On the whole, Timbuktu/Remote is a valuable and easily set up addition to the Mac communications arsenal, filling the need for a remote communications program on the Mac. □

Bernard Aboba is a senior engineer at Failure Analysis Associates of Palo Alto, Calif., and the moderator of the Macintosh developers conference on FidoNet.

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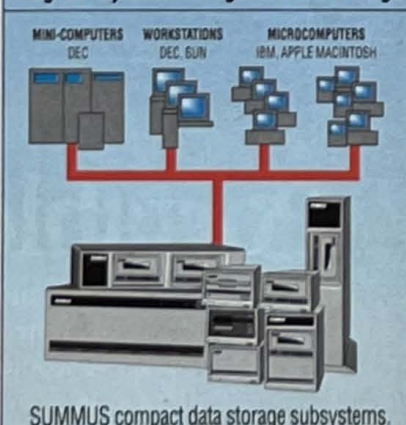
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Flexible design tools: TopDown, MacAnalyst and MacDesigner

Create data diagrams and structure charts



By Dan Rasmus

In the quest for productive and user-friendly software, the missing links have been tools that allow programmers and users to communicate properly. Computer-assisted software engineering tools are helping to fill the gap.

CASE's ultimate goal is the generation of final systems from high-level specifications. TopDown, MacAnalyst and MacDesigner, reviewed here, are examples of new products for the Mac that are automating the transition between the programmer's need for detail and the user's need for functionality.

CASE on the Macintosh comes in many flavors. Costly packages like Iconix Corp.'s PowerTools cover the life cycle of a software system, from costing to analysis to programming. However, the most common CASE tool on the Macintosh is the control flow diagram, or flow chart. Many programs, including MetaDesign from Meta Software and MacFlow from Mainstay, help put the control flow diagram into perspective. But these are tools for software engineers, not managers or inventory control supervisors.

Because of MetaDesign's flexibility, it can also fall into the category of low-end data flow diagramming (DFD) tool, along with programs like Anatool from AdvancedLogical Software and MacAnalyst from Excel Software.

TopDown

Kaetron Software's TopDown is more of a thinking tool than a design tool. It challenges not only how you think about software development, but how you think in general.

The program facilitates flow charting and DFD syntax, but it is also useful for sketching a strategy, capturing ideas, organizing thoughts and devising plans. The outline for this article began as a TopDown drawing.

The logical links that TopDown places between an icon and its hierarchy make it ideal for any kind of design work that calls for thinking in pictures.

TopDown begins with the standard set of American National Standards Institute (ANSI) flow chart systems. To any software designer, these representations of disks, decisions and input/output are familiar. Click on an item in the well-organized palette and you can draw any number of objects in succession. Each object is conveniently numbered and ready for text entry.

ANSI flow chart symbols are familiar features of many logical drawing programs. But what makes TopDown unique is its ability to draw iconic symbols that stand for anything from meetings to movie scenes to nations. Iconic symbols act as extensions to the ANSI set and are drawn in the same manner. Iconic symbols are also numbered and can be used with TopDown's clustering feature.

Drawing connected symbols at a single level may be tedious in MacDraw, but it is not impossible or even difficult. What MacDraw and other similar drawing programs cannot do is keep track of the logical relationships of graphic elements. To MacDraw, a line is a line. To TopDown, lines are connections between objects. Objects themselves are the repositories of data or other diagrams that can be decomposed and explored (or designed) in more detail.

TopDown's clustering feature lets the designer select a series of objects and group them beneath a "replacement object." Where the screen once contained a plethora of details, a single symbol now represents the more detailed structure.

Symbols in TopDown can be automatically numbered and renumbered. Drawings can also be enhanced with patterns or color.

Diagram navigation. Navigating through large TopDown diagrams can be very time-consuming. Fortunately for big thinkers, the program includes an anchoring feature that makes keeping your place a mouse click away. The anchor feature is only available on a single page, but moving around a series of hierarchies is just as easy. Selecting another level instantly transports you up the hierarchy into the next level.

Customizing documents. Each TopDown document can contain a unique set of attributes saved in a preference file. Preference files contain information about the size of symbols, how interconnection lines work, page orientation, fonts, drawing sizes, grids,

fill patterns, pen information, arrows, titles, numbers and shadows. These files can be copied between documents so you can create a standard backdrop.

Not only can you create a customized environment, you can also develop your own set of symbols. TopDown provides two methods for expanding the symbol library: editing symbols in a fat-bits mode and pasting in icons from a MacPaint-formatted file.

Symbols and reports. Each symbol in TopDown can have a note card associated

with it. Note cards can be large, up to 32,000 characters. They can be selected and exported in a Font/DA Mover-type habitat that is built into TopDown.

The hierarchies created by TopDown documents can be represented as an outline, but only the heading information is displayed. We would like to see the next version of TopDown incorporate note cards as documents linked to headlines. The addition of a tabbed text format in the export function would make TopDown a great graphic thinking

Continued on next page

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TopDown

Kaetron Software Corp.
11318 Erickson Drive
Houston, Texas 77070
(713) 320-0278

List price: \$295

✦ Excellent drawing tool for people who need to think graphically; custom features make it very flexible.

✦ Needs a more integrated export approach for text and notes.

MacAnalyst, MacDesigner

Excel Software
P.O. Box 1414
Marshalltown, Iowa 50158
(515) 752-5359

List prices: \$795 each.

✦ Good tool sets for beginners in CASE technology; priced lower than most other CASE tools.

✦ Needs better integration between tools; mini-specification portion needs work to become useful to programmers.

Continued from previous page
front end to programs like MORE II and Acta Advantage.

Programmers and analysts will find the Cross Reference and Errors reports valuable. The Cross Reference Report contains a list of each symbol, its associated text and the list of symbols attached to it. The Error Report points out inconsistencies in a DFD. The DFD portion of the package is rather weak when compared with dedicated software, but it may prove to be a beneficial entry-level tool for

software analysts on a budget.

Reports in TopDown could be improved with the addition of an outline export capability and a more disciplined DFD feature. One of the weakest portions of TopDown is its inability to link text to arrows. This flaw makes serious DFD work difficult.

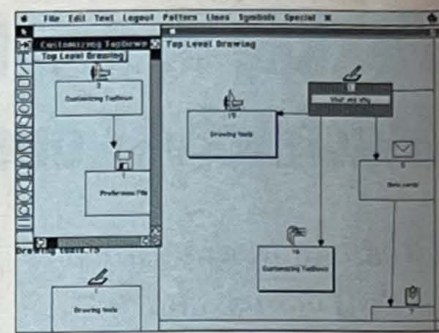
In TopDown, Kaetron Software has created an excellent tool that is structured enough for software designers and flexible enough for Ph.D. candidates searching for black holes and cures for the common cold. The program's icon-driven help screen and its

fewer-than-100-page manual are helpful references for professionals and are adequate for beginners who are just getting their feet wet.

Although TopDown's exporting capabilities are not ideal, its drawing aptitude and adaptability make it a general-purpose tool that would complement any software library.

MacAnalyst and MacDesigner

Excel Software's original product, MacDesigner, has recently been joined in its second generation by MacAnalyst. These two



Kaetron Software's TopDown is more like a thinking tool than a CASE tool. Although some data flow diagramming syntax checks are available in TopDown, it is relatively undisciplined compared with the other products.

programs work in concert to define user requirements through DFDs (MacAnalyst) and program structure through structure charts (MacDesigner). Both products are professional tools for software developers and systems analysts.

A visit with MacAnalyst. MacAnalyst, the DFD portion of the Excel Software CASE duo, begins by greeting you with a blank text-editing document rather than the analysis document one might expect. Because MacAnalyst does not let you create process documentation dynamically, you must first save this text document as your analysis document. Once you have a blank process description file on your disk, you can begin analyzing your system.

Analysis documents consist of a palette and a work area. The palette provides tools for selecting objects; entering text; placing processes, stores and external entities; and drawing data flows. These are the essential tools for DFDs, and they are represented well in MacAnalyst.

Choosing the Process tool and placing a process invokes a dialog box that defines how the process will appear in the data dictionary as well as other attributes (including how the process is displayed on screen, whether it is a Data or Control process, the explosion type and its number). Explosion type is very important. As a diagram becomes more detailed, the need to explode into lower-level diagrams becomes less necessary. At a certain level, processes become descriptive actions and should be entered as specifications. Specifications are stored in your original text document or in any text document that exists in your default analysis folder. Only documents in the default folder can be linked to your diagram.

To help designers and analysts develop processes, a pseudocode template can be developed that is pasted into the analysis file. Other tools in MacAnalyst that help speed data entry are Parent Flows and Process Keys. The Parent Flows command pastes data flow arrow names into the analysis document. The Process Key command places the number of an associated flow into the analysis document as a marker. When you double-click on a process to reveal its description, the general analysis text document is opened and you are delivered to the Process Key associated with the current process. Processes may also have lower-level diagrams structured below them. By double-clicking on a process defined as a "diagram" explode type, a new analysis page will be created. Here the data flows that make up your higher-level process can be defined.

Data dictionary. Every object in MacAnalyst is a piece of data, a file or a process. These bits and pieces of information may appear in diverse places on the diagram, but

Continued on Page 108

How To Triple The Speed Of Your Mac For Under \$250

by Randall D. Smith, Founder of MacAcademy™

A few years ago I wanted to be a better golfer so I went out and bought the same clubs that Jack Nicklaus uses. Today we play exactly the same clubs... he's still great and I'm still terrible.

Last month I bought a Porsche 911 Turbo. I now have one of the fastest, most powerful cars in the world. As I was reading through the manual I came across a statement that suddenly made me realize the error of my thinking. The manual basically said that *the only weakness this car has is the driver*. In other words, no matter how good the equipment, the key element is still the operator!

As you read through the Mac magazines you'll realize that the same delusion exists among Mac users. People believe that to dramatically increase the productivity of the Mac they simply need to buy bigger, better, and faster hardware and software. If you don't believe me take a look at all the ads in this magazine for the newest Macs, fastest hard drives, and the latest in accelerator boards.

Usually the difference is a matter of milliseconds. Imagine the person who passes up a Mac Plus and spends an extra \$4,000 to get the fastest Motorola processor, spends another thousand on an accelerator board, two thousand on a huge hard drive, and now spends two hours trying to figure out how to do a mail merge on Microsoft Word!

If you want to save hours instead of milliseconds, invest your money in training the user instead of upgrading the equipment. Training is the wisest and least expensive investment you can make in your Mac.

If you have a hardware and software surplus, but a training deficit, I'd like to invite you to attend MacAcademy. Over 2,000 companies have found MacAcademy to be the low cost solution to their training needs. MacAcademy is a full two day Macintosh training course that costs only \$249. MacAcademy

offers both basic and advanced training on the Mac, Microsoft Excel, Works, and Word. Also included is training for Aldus PageMaker, Claris HyperCard and FileMaker II.

After spending two days with our unique, all-star, teaching staff you will dramatically increase your productivity and cut your learning curve in half. Your work will be done faster, more professionally, and you'll feel 10 times more confident with your machine. One MacAcademy graduate recently wrote us that if he had to choose between a MacAcademy trained employee on terrible equipment or a non-MacAcademy trained employee on the latest equipment he'd choose the MacAcademy trained employee any day. He'd get more work done in less time.

Here are a few comments from people who attended MacAcademy in Boston on March 20th:

"This has been the most productive two days I have ever spent. Well worth the price, very cost effective, the most knowledge per dollar I've seen. Quality instructors who understand and respond to the needs of the attendees."
K. Hemeon, Norwell, MA.

"I felt all classes contained excellent material. All the instructors maintained a level of patience and support which surpassed all of Macintosh's user friendly features."

D. Quinn, Seabrook, N.H.

"Bravo! What a fantastic learning experience! I really think that 2 days at MacAcademy should entitle every graduate a week's vacation to absorb! Thank you. Thank you."

C. Bancroft, Plymouth, MA.

"This is my second venture at MacAcademy and I again feel it was well worth the money. I have 10 of your video training tapes which I also find extremely helpful."

C. Allen, Framingham, MA.

Over the past year and a half MacAcademy has been presented in over 22

cities to over 14,000 Macintosh users. Our satisfied corporate graduates include General Electric, TRW, NASA, Citibank, Federal Express, HBO, the U.S. Army, Navy, Marines, and Air Force, nearly every branch of the U.S. government, nearly every large university in America, and thousands of corporations both large and small. Each company put their trust in our company by investing \$249 per employee and by enrolling in MacAcademy. We at MacAcademy take that trust very seriously. On a scale of 1 to 5 our attendees consistently rate us a 4.6. Our goal is nothing less than 5! I invite you to plan now to attend the next MacAcademy in your area. If you want references please call us...we literally have thousands.

Like any other successful program MacAcademy has recently seen its share of "clones". There are those out there who have attempted to copy our format, our brochure, even our price. What they can not copy is our quality.

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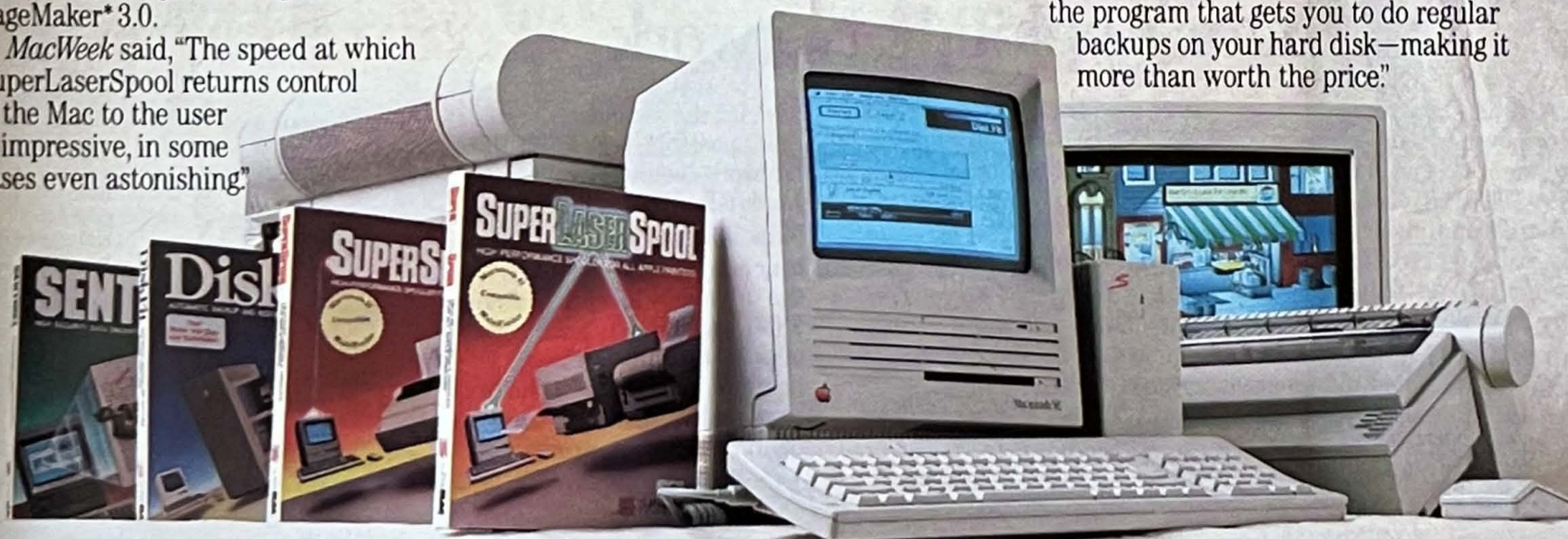


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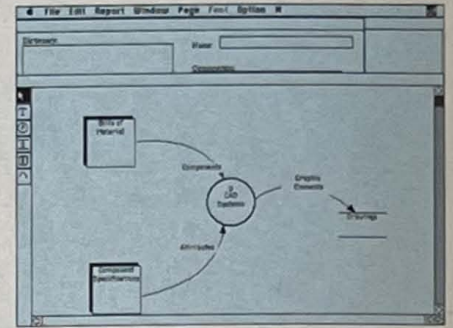
they are all centrally represented in the data dictionary. One of the problems with MacAnalyst is the lack of automatic integration between functions. Because Excel Software appears to be striving for flexibility, dictionaries and text can be linked to other diagrams. The process of linking is easy, but it is not intuitive. It took us a few minutes to figure out why we were unable to enter dictionary items automatically when the automatic dictionary entry option was on and the dictionary was visible on screen. We had forgot-

ten to add our DFD to the dictionary's list of reference documents. A more intuitive solution would include prompting for a dictionary name with the option of creating a new dictionary if one doesn't exist.

Entering items into a data dictionary does not necessarily complete a valid system. MacAnalyst can help validate your system model through several reporting functions. The Tree Diagram function can be used to look at models as a hierarchical tree chart. Tree charts give developers the opportunity to identify missing system com-

ponents easily. Standard among CASE analysis tools is the error-checking function. This report, or syntax check, points out processes that do not conform to standard DFD rules. Since MacAnalyst uses the Yourdon/DeMarco CASE methodology, you must have an even number of flows entering and exiting a process.

Reports, like the dictionary, are somewhat awkward. To enable the reporting features, a text document must be open. Again, we feel that documents should be created as needed by functions if they are not already available.



MacAnalyst's working environment includes a set of data flow diagram design tools, text files for pseudocode specifications and a central data dictionary.

Overall, MacAnalyst is a very good CASE tool for its price range. It does everything a DFD tool is expected to do. The interface is a little clunky at times, but we think Excel will fix these items as the product matures. Analysis of requirements is only one phase of the software life cycle. To help the analyst and the programmer communicate, Excel has created MacDesigner.

Giving your software a little structure. MacDesigner is an integrated partner for MacAnalyst. It creates structure charts linked to MacAnalyst DFDs. Dictionary and text documents can be shared between the two programs and the interfaces are almost identical, so navigating will be easy once you know one of the programs. The attention to detail in making the programs compatible gives MacDesigner the same clumsy faults in document linking as MacAnalyst. Both programs need an overall linkage. But once you get past this problem, MacDesigner is as competent as its counterpart.

MacDesigner's tool palette is the primary difference between the two programs. With MacDesigner, you get a selection arrow and tools for modules, stubs, links, data couples, control couples and polygons, and a slot for up to 10 user-defined symbols. The user-defined symbols are strictly documentation aids for enhancing your charts; they cannot be linked to a document or to the module or stub symbols.

The goal of a structure chart is to modularize a software design. By arranging modules in a window, you can quickly define the different routines and subroutines that will comprise your completed program. Modules may be decomposed into low-level specifications by double-clicking on them.

In MacAnalyst and MacDesigner, one must examine the default menu items closely. Many things you would expect to be standard Mac fare are disabled (but available) when you open a new document. Double-clicking on a module, for example, does not bring up its associated document without enabling that option. Several other items, like module/process size and numbering schemes, can be modified using the Defaults command. The manuals for both programs cover all these functions thoroughly. Because the interface is sometimes strange, the manuals will be necessary companions until you are familiar with a program's operation.

Structure charts are often massive documents. The stub tool is provided to eliminate the need for long, hard-to-follow lines in a structure chart. Unlike DFDs, structure charts cannot have child modules attached to them. Everything is connected on one page. If you have module relationships that transverse long distances, the stub tool can be used to link up items. The program assumes that any stub with the same number is connected. Connections

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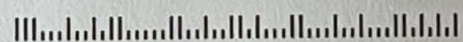
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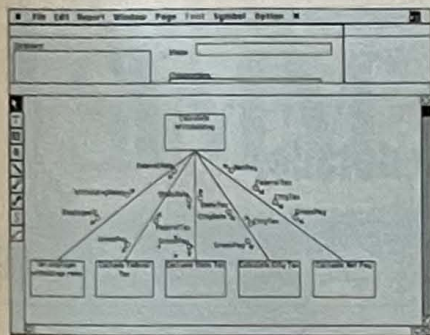
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By breaking designs into modules, structure charts can be transformed into structured programs. Like Excel Software's companion program MacAnalyst, MacDesigner includes tools for checking structure chart syntax.

The CASE methodology

It is in the data flow diagram, or DFD, that computer-assisted software engineering truly begins. A DFD is used by a software analyst, in conjunction with the client, to build a model of what processes are in a system and what information is required in each process. A typical DFD begins with an overview of the system, which is called the context diagram. The processes in a context diagram are then "exploded" to lower levels so that more detail can be added to the model.

Developing DFDs is a very time-consuming and meticulous task. Software tools have automated the process of drawing, but they have not automated the thinking and negotiation. Many hours are still invested in drawing and changing charts to reflect the real functions of a software system.

Once the systems analyst and client are satisfied that a system has been specified correctly, a structure chart is drawn from the information in the DFD. Structure chart modules map proposed routines and subroutines as they will appear in a final system. Many structure chart tools have pseudocode editors that allow programmers to define the functionality behind a module.

Central to all CASE tools is a data dictionary, which defines how information in a system is referred to. Many tools allow data elements to contain comments and aliases when an item is referred to by more than one name. Data dictionaries define everything from low-level data to files to processing arrays. The data dictionary is the link between all segments of a CASE tool kit.

Beyond these common tools, some mainframe products and emerging microcomputer aids are adding code generation to their arsenal.

While the reality of software generation from graphics specifications will not be seen for some time, the productivity gains from breaking down communication barriers between users and MIS can be achieved with tools that exist today. CASE allows rapid adaptation to changing requirements. Changes in DFDs can be seen in structure charts, and from structure charts the changes can be manifested in programs. CASE is not an investment in a blue sky technology; it is an investment in the promise of better, more timely programs. — By Dan Rasmus

Continued from previous page
between stubs or modules are executed using the link tool.

Once links are established, users can define the data or control flow with couples. The data couple defines the flow of data between modules, and the control couple designates how program control passes between two modules.

MacDesigner is a good structure chart drawing program, but its interface, like that of MacAnalyst, leaves much to be desired. The default folder concept is fine, but it

should be inherited from document to document. Requiring the user to save open text windows before reports can be generated is ridiculous. But what MacDesigner misses as a Macintosh program, it makes up as a CASE tool. The structure that the program requires follows the Yourdon/DeMarco methodology very closely. Anyone who has drawn diagrams by hand will appreciate this handy tool.

Conclusions. TopDown, MacAnalyst and MacDesigner can all become impor-

tant parts of your software design methodology. Each program brings the strengths of its methods to the Macintosh in stable, usable editions. TopDown can help you think about your project and then turn it into a flow chart, MacAnalyst can turn thoughts into a DFD, and MacDesigner can work in concert with your DFDs and flow charts to further refine the system. None of these programs help you actually code your project, but they will all make rewriting code a much less frequent occurrence. □

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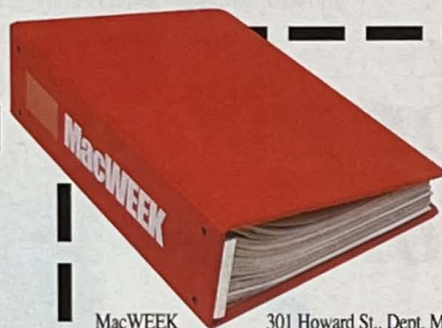
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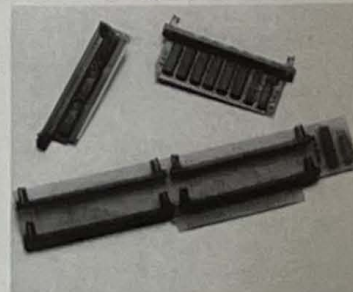
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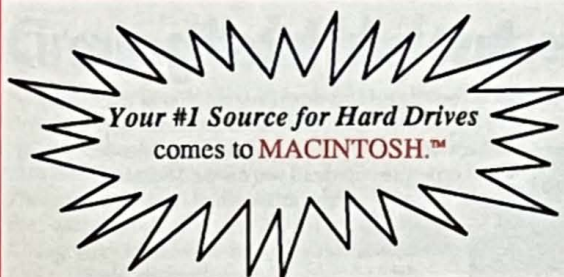
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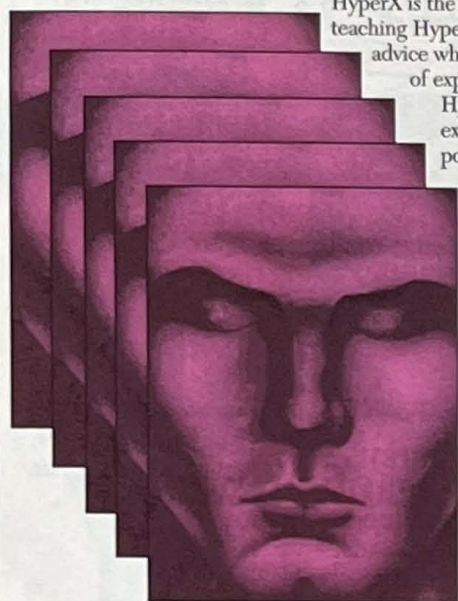


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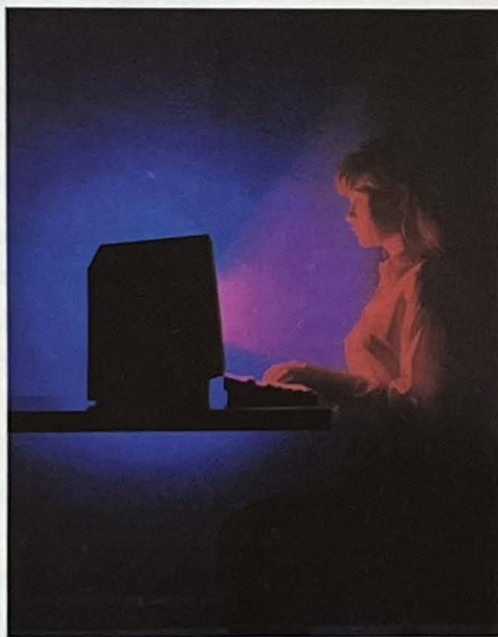
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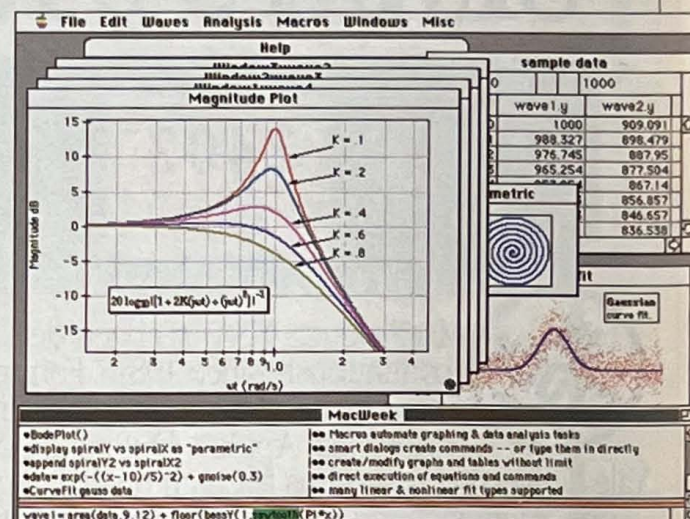


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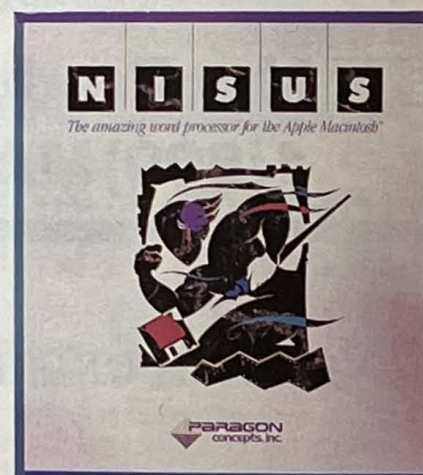
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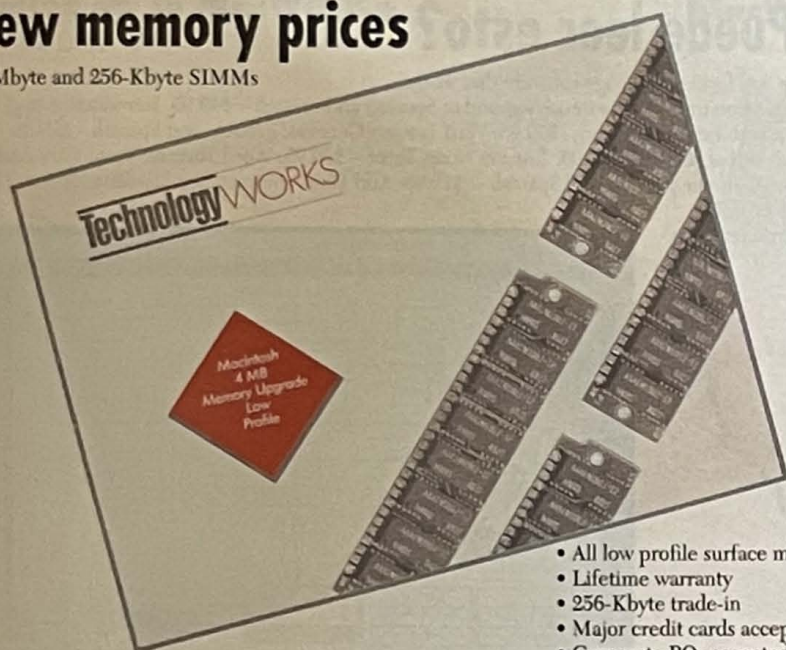
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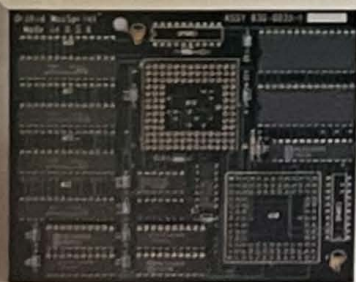
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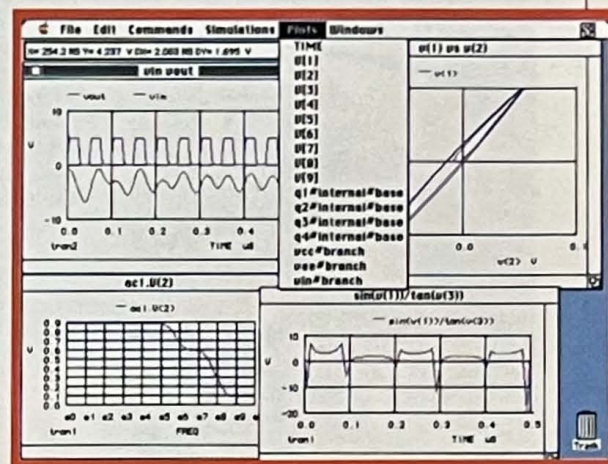
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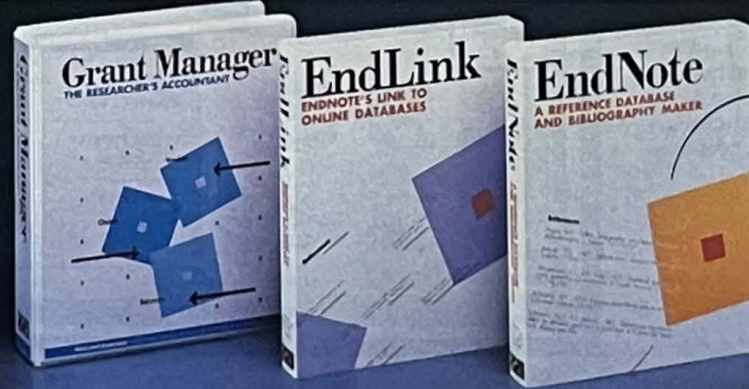
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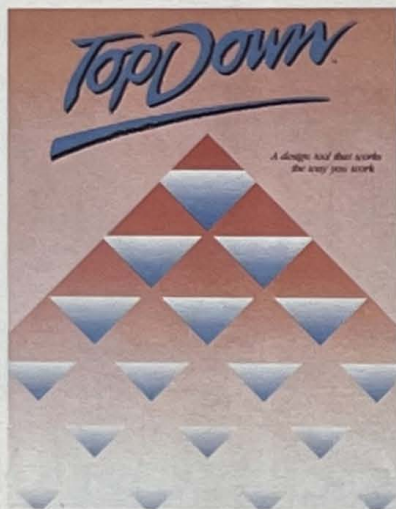
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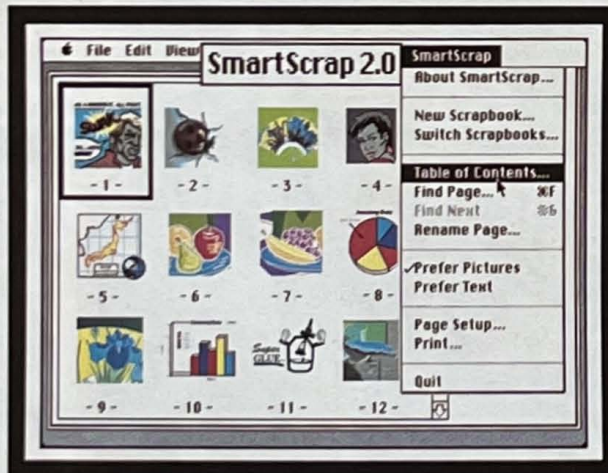
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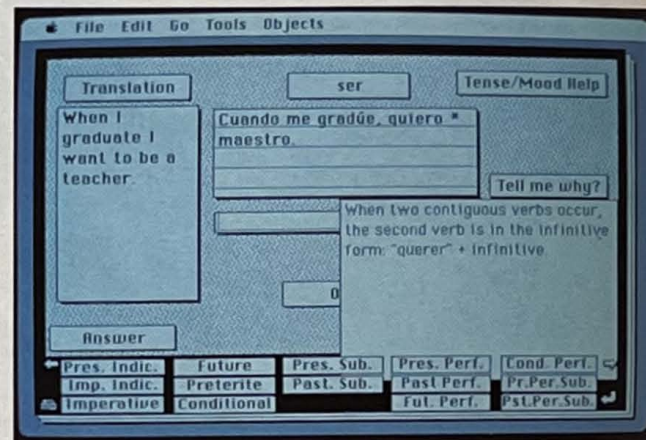
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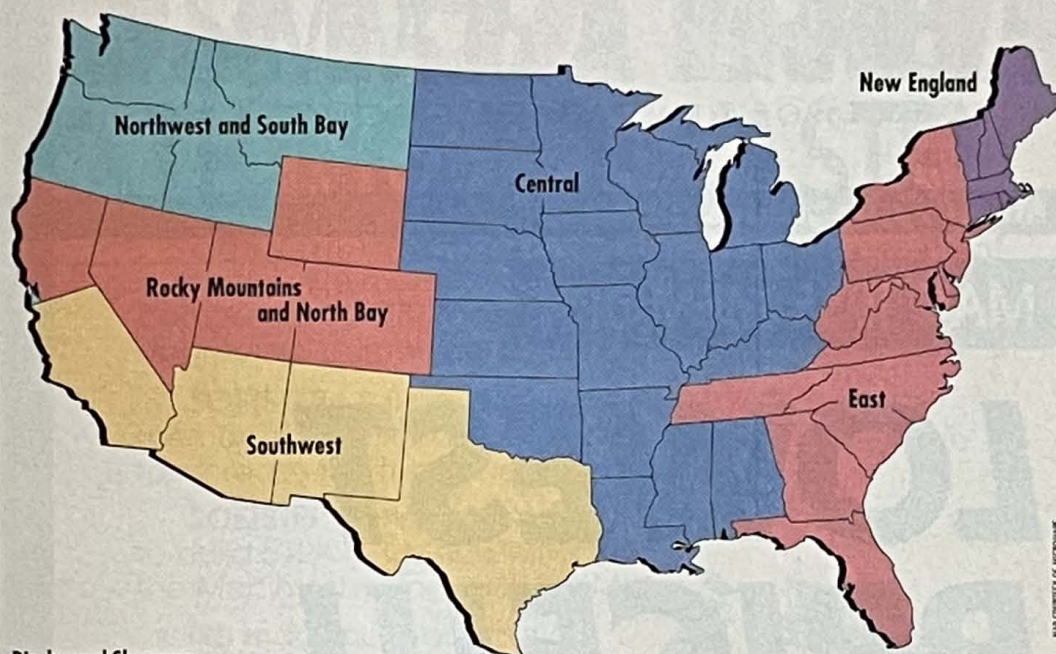
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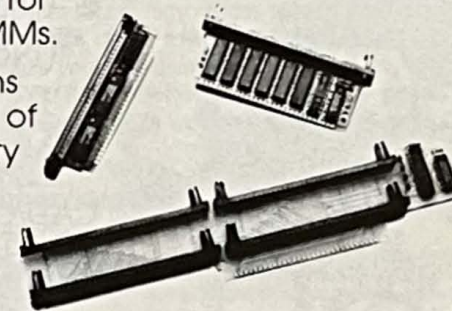
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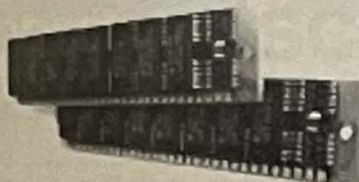
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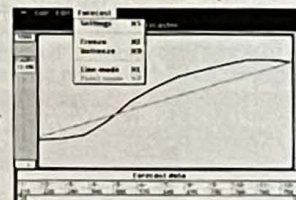
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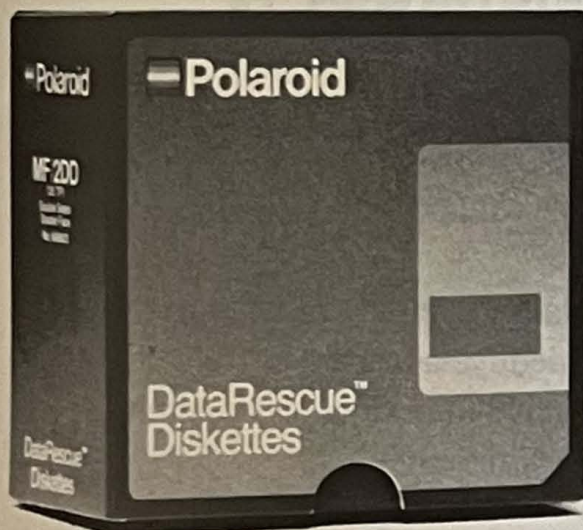


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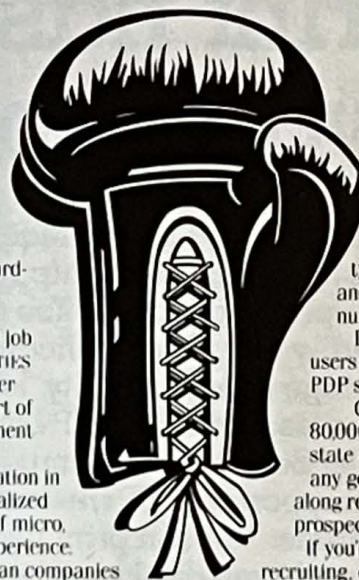
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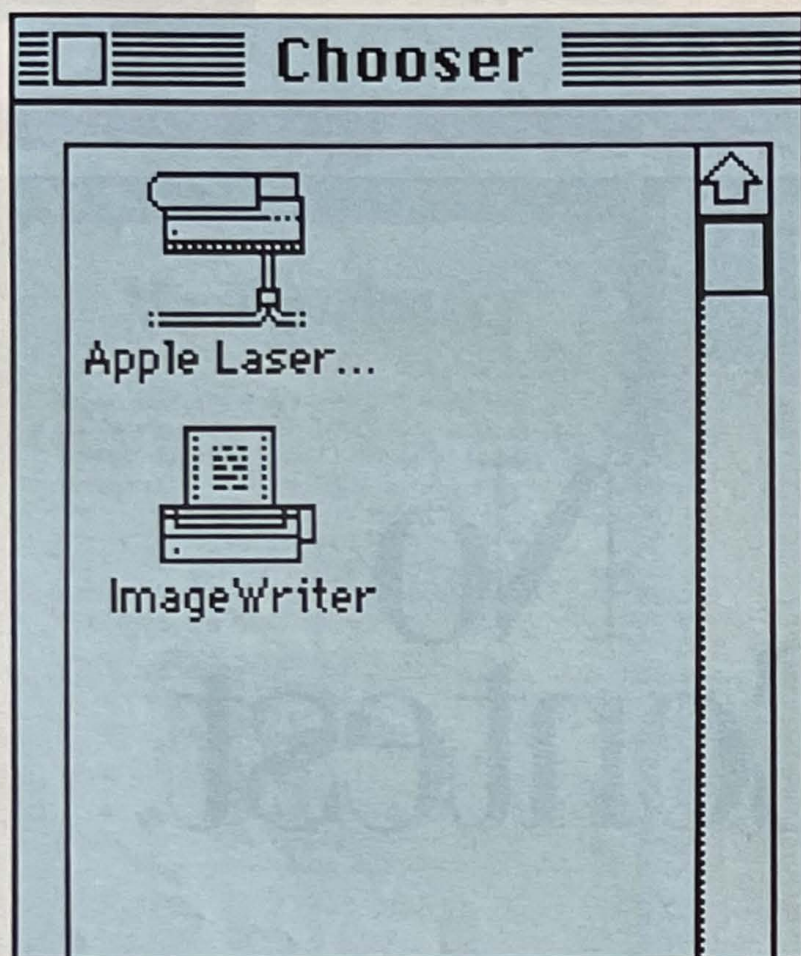
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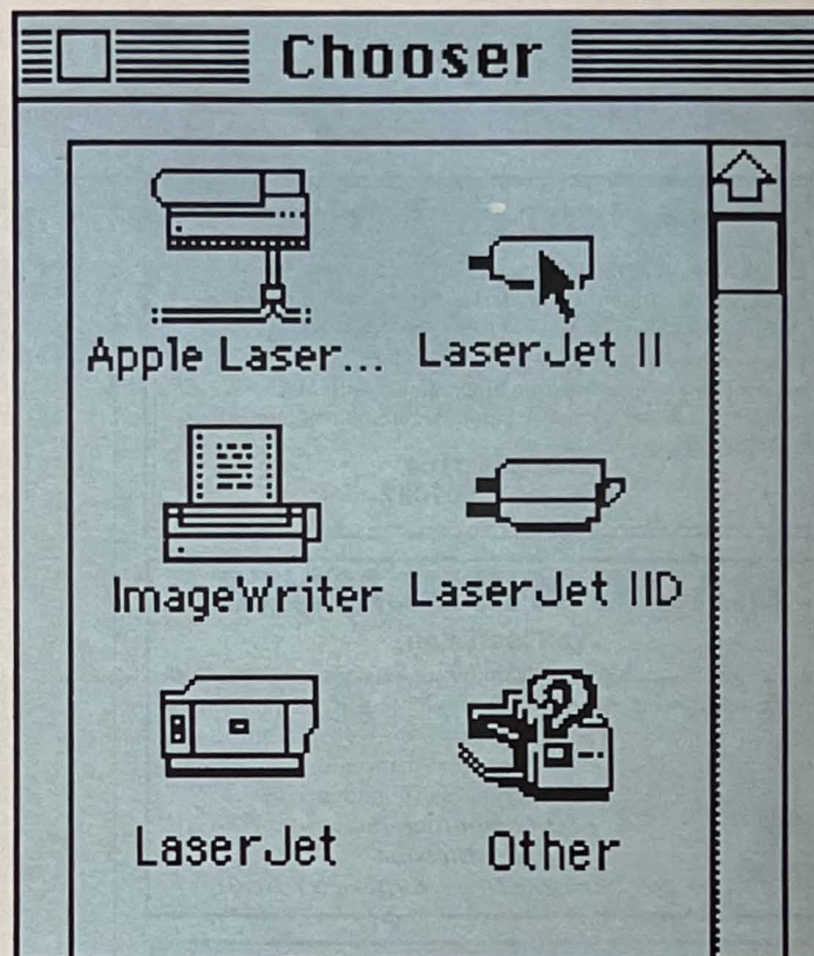
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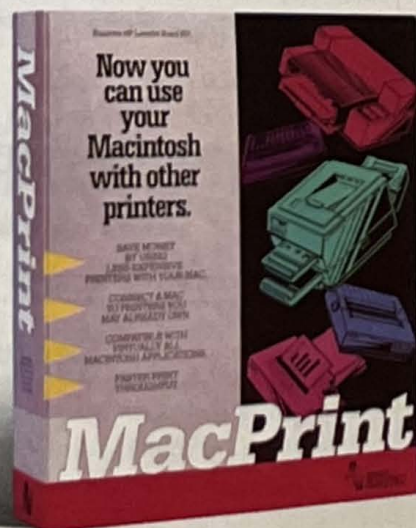
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Profits off 29%,
but sales are up

By Pamela Pfiffner

Cupertino, Calif. — Although Apple last week reported a decline in profits for its second fiscal quarter, higher-than-expected sales may indicate that the company has regained its financial footing and has expanded its market share.

As predicted, Apple's net income fell during the fiscal quarter ending March 31, but the drop was much less than many analysts expected. Profits declined 29 percent to \$56.4 million, or 44 cents a share, from \$79.7 million, or 61 cents a share, for the same period last year. Net sales for the quarter rose 44 percent to \$1.25 billion from \$867.2 million for the same period a year ago.

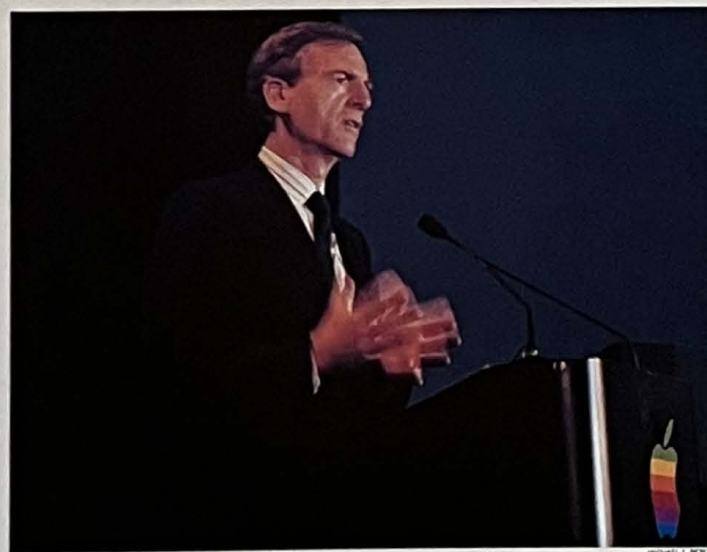
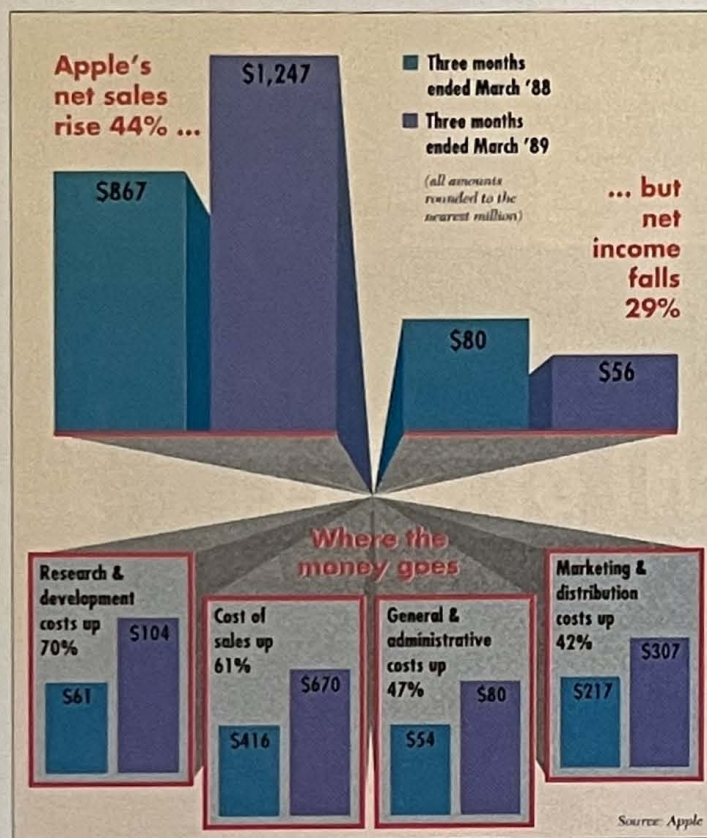
"Apple's earnings were better than I expected," said Doug Van Dorsten, an analyst with Shearson Lehman Hutton Inc. in San Francisco. "Apple had been specific that there would be a hit to its earnings, but this is less than I anticipated."

As recently as January, Apple warned analysts that net income could drop as much as 43 percent, due primarily to miscalculations in the purchase of memory chips and the pricing of its high-end systems. At the peak of the dynamic RAM shortage last summer, the company stocked up on high-priced chips only to see prices fall when cheaper chips flooded the market.

Apple tried to recoup its losses by raising prices in September, but customers balked and bought lower-end machines and upgraded them with less-expensive memory from other suppliers.

"We believe the problem of excess high-priced 1-Mbyte DRAM is now substantially behind us," said John Sculley, Apple's chairman and CEO. He added that the company is on target to surpass its goal of \$5 billion in revenues in fiscal 1989.

See Apple, Page 132



Apple CEO John Sculley told attendees of the Macintosh Business Conference & Exposition in New York last week that the company will surpass \$5 billion in revenues in fiscal 1989.

Could Quarterdeck patent 'shatter industry'?

By Emily Brower

Washington — A software patent for MS-DOS windowing technology was issued last week that could affect the future of Windows, Presentation Manager and other windowing environments.

Quarterdeck Office Systems of Santa Monica, Calif., was granted a patent for technology that enables off-the-shelf DOS programs to run within windows. The technology is part of Quarterdeck's DESQview and DESQview 386 DOS extenders that allow applications written for DOS to run concurrently in separate windows.

Broadly interpreted, the patent

could mean that any developer using windowing technology in its software or hardware could be required to pay Quarterdeck royalties. Quarterdeck President Terry Myers said, however, that the patent is only related to technology that manages windows for DOS programs that do not understand windowing environments.

"We will look and see if anyone is doing the same thing, and if they are we will try and enter into a licensing agreement. It's a normal way of doing business," she said.

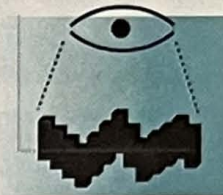
Legal experts cautioned against drawing conclusions before Quarterdeck's claims are clearly under-

stood. Patents, which provide more specific protection for intellectual property than for copyrights, are often difficult to interpret.

"This could be a blockbuster, but it's impossible to tell right now," said Stephen Kahn, an intellectual-property lawyer with Weil, Gotshal & Mander of New York. "I'd be amazed if the patent broadly covered the idea of windows."

But while the industry awaits the legal community's opinion on the patent's scope, analyst Andrew Seybold has already predicted that Quarterdeck's claim could "shatter the computer industry." Whether

See Patent, Page 132



Business BRIEFS

CDC cutbacks won't affect drive subsidiary Imprimis

Minneapolis — Major layoffs and write offs announced last week by Control Data Corp. are not expected to affect Imprimis Technology, the profitable CDC subsidiary that manufactures high-capacity hard disk drives for the Mac and other computing platforms.

CDC, one of the nation's largest manufacturers of mainframe computers for scientific and technical markets, moved aggressively to address problems that have dragged down its earnings over recent years. The company last year earned \$1.7 million on revenues of \$3.62 billion.

CDC will eliminate 3,100 jobs — approximately 10 percent of its work force — by shutting down its supercomputer subsidiary, ETA Systems, and cutting back the size of its mainframe computer products group and corporate staff. Altogether, the company will write off \$490 million in its second quarter as the cost of the reorganization.

"It'll have no effect whatsoever on us," said Lou Lundberg, Imprimis marketing communications manager. "We're doing great." Imprimis is the leading supplier of drive mechanisms in the 100-Mbyte-plus range for the Mac market, selling its Wren mechanisms through Apple and a host of third-party vendors.

Lawrence Pearlman, now president and chief operating officer of CDC and one of the architects of the last week's moves, was president and CEO of Imprimis until December 1988.

No. 2 exec at Sun resigns unexpectedly

Mountain View, Calif. — Bernard J. Lacroute, second in command at Sun Microsystems Inc., will resign his post as executive vice president effective July 1, the company announced last week.

Sun officials, denying speculation that the unexpected resignation was due to conflicts among top managers, cited Lacroute's desire to take a break from the industry's "hectic pace" as the motive for his departure.

The 45-year-old executive is generally credited with stabilizing the young computer company, which has grown to nearly \$2 billion in revenues since its founding in 1982, analysts estimated. Lacroute joined Sun in 1983 as vice president of engineering. Less than a week before his resignation he helped to introduce Sun's new line of SPARC workstations.

Wall Street seemed to react negatively to the news. On the day of the announcement, while other high-tech stocks rose sharply, the price of Sun's shares dropped three-quarters of a point to \$17.38.

Graphic Notes folds; company formed to support Music Publisher

Aptos, Calif. — Graphic Notes Inc., an Australian developer of a Mac music composition, notation and publishing system called Music Publisher, has ceased to exist, but two companies staffed by former employees of Graphic Notes have acquired rights to the product and taken over sales and support in the United States.

The \$595 Music Publisher package, originally released in this country in April 1988, features Presto, a high-speed data entry key pad designed specifically for musical notation.

Rights to Music Publisher have been purchased by Repertoire Pty. Ltd., which in turn has contracted with a new company called Music Software Plus to market and support the product. Music Software Plus has announced the release of Music Publisher Version 2.02, which is available free of charge to users who return their original master disk.

Former Apple CFO Coleman pledges to return to company

By Emily Brower

Cupertino, Calif. — While rumors of her imminent departure make the rounds in Silicon Valley, Apple's ex-Chief Financial Officer Debi Coleman said in a recent phone interview

that she has no plans to leave the company and anticipates staying on through the 1990s.

Coleman, currently on a leave of absence from Apple while she deals with back and weight problems, told MacWEEK that she is

looking forward to returning to Apple in July as vice president of tax and treasury. "I'm not pretending that it will be an overly challenging job, but I'm trying to structure a place at Apple that will allow me to stay relatively healthy," she said.

Her decision to take a leave of absence was unrelated to recent and upcoming departures of other Apple executives, such as former Vice President Chuck Berger and current Apple Pacific President Delbert Yocam, Coleman said. She denied that it reflected any internal turmoil at the company.

Looking forward to 1990 or 1991, Coleman said that she would like to work on a "Claris type of thing," but said that no specific plans for another Apple spinoff have been laid out yet.

Anyone looking for Coleman in the next three months will most likely find her at Apple's health and fitness center. She also takes long walks in the nearby Stanford hills, she said.

It was after one of these walks that she ran into NeXT founder and CEO Steve Jobs, with whom she worked closely during the development of the Mac. "I told some people that I had seen him, and that's probably how these rumors that I was leaving Apple got started," she said. □

Apple-Microsoft lawsuit agenda set

San Francisco — Barring the possibility of an out-of-court settlement, a resolution of Apple's copyright infringement suit against Microsoft and Hewlett-Packard could be more than a year away.

According to the schedule recently set by federal Judge William Schwarzer, hearings in the next phase of the lawsuit will not be held until April of 1990. The new schedule specifies that discovery in this phase, which concerns the validity of Apple's visual display copyrights, will end on Jan. 15, 1990.

Schwarzer said during the hearing that he hoped the schedule would motivate the litigants to work toward a settlement. According to sources, Microsoft and Apple have discussed an out-of-court settlement off and on since the case was filed in March of 1987 but have yet to reach an agreement. □

Westinghouse buys Mac, DEC imaging developer

Pittsburgh — Westinghouse Electric Corp. announced April 6 the acquisition of Perceptics Corp., a Knoxville, Tenn., company that offers scientific and industrial image-processing, optical storage and artificial intelligence products for the Mac and other platforms.

"This was a positive buyout," said Al Johnson, director of the imaging division at Perceptics, which was founded in 1980. "It was mutually agreeable, and we will continue to act as a wholly owned subsidiary with no organizational impact." Westinghouse acquired a minority stake in the 100-employee Perceptics in 1985.

In addition to an extensive line of hardware and software products for Digital Equipment Corp.'s VAX computers, Perceptics offers NuVision, an expandable external chassis that turns the Mac II into an image-processing workstation.

Last fall the company also introduced TCL-Image, a \$6,500 frame-grabber and software bundle for extracting quantitative data from video cameras attached to microscopes or machine-vision inspection systems. The Mac II product incorporates a command language that lets users easily experiment with a variety of image-processing algorithms.

The terms of the Westinghouse buyout were not disclosed. However, Johnson said, "Westinghouse will give us the backing to accelerate product development."

Perceptics Corp. is located at 725 Pellissippi Parkway, Knoxville, Tenn. 37933-0991; (615) 966-9200. □

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Apple breaking into systems integration

By Jiri Weiss

Cupertino, Calif. — Apple is trying to break into the fast-growing commercial systems integration service industry by developing demonstration Macintosh solutions in three key areas: storage and retrieval of information on CD-ROM, executive information systems and sales automation.

Apple is developing the integrated packages at the request of corporate customers and is using Apple and third-party products, according to Michael Szabados, manager of sales and marketing for Apple Integrated Systems (AIS), the group in charge of the development.

But the systems, some of which will be

ready by year's end, are also meant to impress the usefulness of the Mac on systems integrators that Apple has been courting.

The company recently formed partnerships with three companies: EDS of Dallas, a \$4.8 billion computer services giant that is now a subsidiary of General Motors; Systems House Inc. of Arlington, Va.; and Big

Eight accounting firm Peat Marwick Main & Co., which wants to leverage its Macintosh expertise.

The 100-person AIS team, formed in earnest last September after months of preliminary exploration, is viewed by Apple as a key component of its business strategy in the next decade, according to the company.

"All we need to do is develop a few real solutions and two or three successes to prove to a company like EDS that [adopting the Macintosh] is something they should do," Szabados said.

Document management. Document management is one such Macintosh solution. In the not-so-distant future airline mechanics will search a Macintosh CD-ROM database for repair instructions and parts descriptions instead of poring over hard-to-manage microfilm, Szabados said. Apple recently showed a prototype of its system to American Airlines, according to Jim Johnson, customer service manager of Maxwell Data Management Inc., a Costa Mesa, Calif.-based integrator and developer. Maxwell has been collaborating with Apple on the project.

AIS is developing a prototype of the document management system primarily with third-party products and plans to leave vertical market application development to companies such as Maxwell, as sales in a particular niche area are likely to be small. Even if a giant such as American Airlines specifies the Mac as the platform of choice — something it has not yet done — Apple would sell no more than 500 to 700 Macs, Johnson said.

American Airlines, which has also reportedly been testing an IBM PC-based document-management system, did not return calls about the status of the Apple deal.

Apple also plans to target other industries for the system, primarily those, such as the pharmaceutical industry, that are heavily regulated by the federal government, Szabados said. "It takes five to seven years to push a drug through the review process," he said. "A company has to submit data for review. If you put it all in an electronic format you could reduce that cycle quite a bit."

Apple is focusing on improving the preparation of data for inclusion on a CD-ROM rather than retrieval, which Szabados called relatively easy.

Executive information systems. Apple is also working with systems integrators to develop executive information systems (EIS). The idea is to bring information from various sources onto an executive's desk in an easy-to-understand format. EIS packages automatically draw the executive's attention to important reports, highlighting items such as a project that's over budget.

Because they are targeted at upper management, such systems will not sell many Macs directly, Szabados said. "But if you get to 30 executives, you won't have trouble getting them to approve the next order of computers."

Three major vendors of development shells for EIS — Austin, Texas-based Execucom Systems Corp., Pilot Executive Software of Boston and Comshare Inc. of Ann Arbor, Mich. — are considering the Macintosh as a platform for their software, MacWEEK has learned.

As these vendors put an emphasis on graphical interfaces, the Macintosh is a natural path for them to take, according to Allan Frank, senior manager at Peat Marwick's Philadelphia office and developer of EIS programs for the company.

EIS software typically includes a main-frame database as well as communications and financial modeling software. The development systems can cost up to \$300,000.

See Integration, next page

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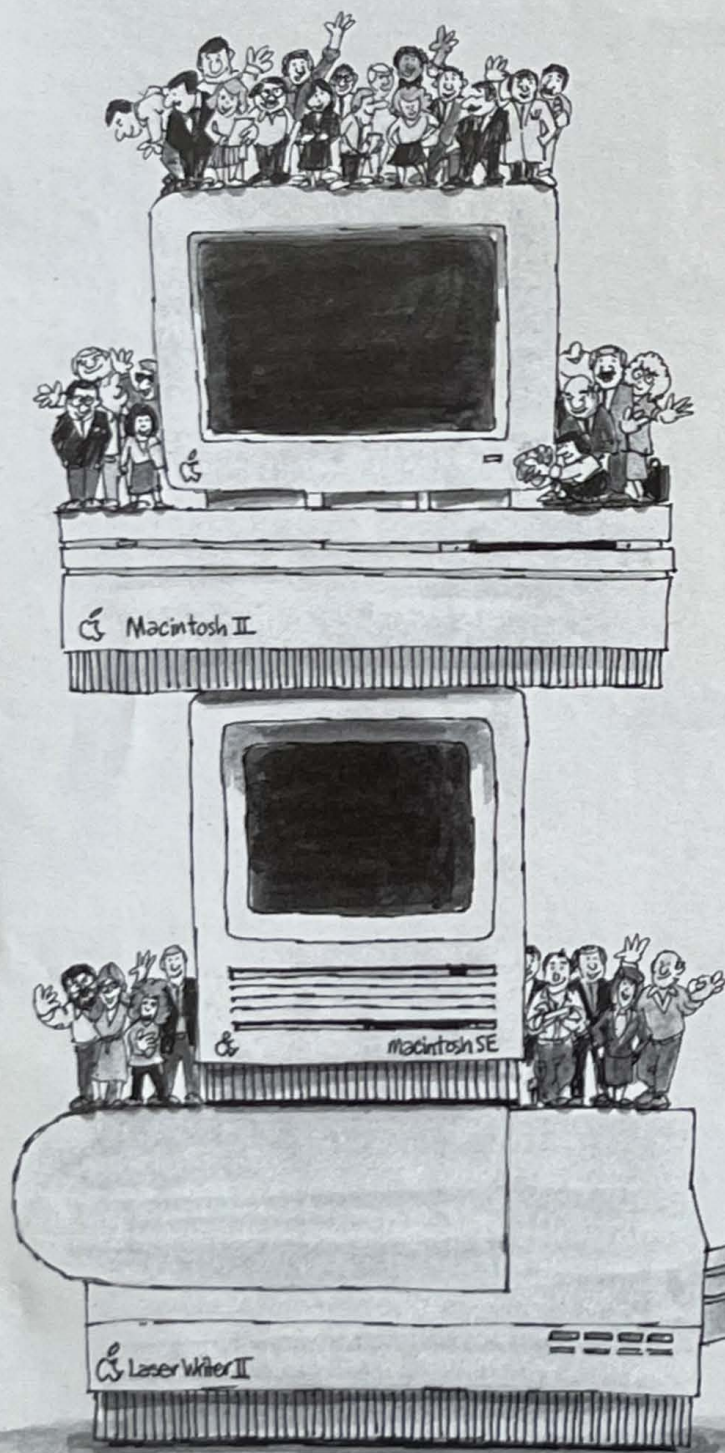
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Integrators offer variety of services

Systems integration, a service industry that started in the 1950s to help the government handle complex aerospace contracts, has in the past few years expanded into the private sector, where analysts predict it will grow at a fast clip even if sales of hardware level off.

Framingham, Mass.-based International Data Corp. predicted that the overall systems integration service market will reach \$21.9 billion in 1993, up from \$7.9 billion in 1987, with the commercial sector portion reaching \$5.4 billion, up from \$1.5 billion.

"Paradoxically, what has made the commercial systems integration market feasible is that there are enough standards to make distributed systems possible and yet there are so many standards that tying the different pieces together is very difficult," said Karen Kugel, vice president of IDC's integration group.

Even large companies find it difficult to keep up with the pace of technology and are hard pressed to find enough in-house MIS expertise to handle the job, she said.

Systems integrators do much more than merely put together disparate hardware and software products, as the name might suggest. Drawing on professionals within their organizations, they offer a broad spectrum of services, including custom programming, training and support.

"We act as general contractors. We buy the hardware, test it, even build computer rooms and pull the wires," said Andrew Bart, senior vice president for strategic systems at System House, an Arlington, Va., integrator. "We can offer a client support for 12 years on the systems we deliver, train their employees or [handle anything] in between."

Systems integrators do more than solve technology questions and act as management consultants. "What you are developing today is not just a way of implementing technology but a business implementation," said Joe Garappolo, senior manager of Peat Marwick Main & Co.'s information systems and technology group in San Francisco.

Systems integrators also offer something independent contractors and other service providers often do not: contractual responsibility for the finished product.

"If EDS or Peat Marwick is managing the project, they are accountable to you and assume the headache of procurement, implementation and training," Kugel said. "[The systems integrator] becomes a single point of contact for the client."

The target customer for systems integrators is a Fortune 1,000 company, preferably one that is experiencing high rates of growth. Corporations that use the Mac exclusively for limited specialty functions like desktop publishing are also not likely to hire a systems integrator. "Most of our Macs are used in one configuration. It's not so hard to hook up a printer, load up some software and get someone into PageMaker," said John Estill, personal computer administrator for Chevron Information Technology Co. of San Ramon, Calif., a subsidiary of Chevron that purchases computers for the whole corporation and controls the purchase of several thousand Macs.

Other large Macintosh sites that are implementing distributed systems themselves, such as Seafirst Bank in Seattle, General Electric Co. in Bridgeport, Conn., and Home Box Office of New York, said they have enough in-house expertise to do the job. "It is very hard to expect an outsider to have an eye on corporate culture and know what executives expect," said HBO's Martin. "We prefer to make our own mistakes."

Still, the number of major corporations betting that systems integrators may help them avoid mistakes seems to be steadily increasing. Apple is gambling that investing not only in the development of integrated solutions but also in its new relationships with leading providers of integration services will help it to expand its beachhead in the Fortune 1,000 market. — *By Jiri Weiss*

Integration *Continued from Page 130*

Some corporations that have been developing EIS on their own with HyperCard as a front end, including GTE Corp. and Home Box Office (see MacWEEK, July 19, 1988), said they are not interested in purchasing such products.

"We looked into Pilot a few years back," said Robert Martin, director of network programming services at HBO in New York, "but the amount of money it wanted was astronomical, and we weren't confident that

our data was strong enough to make that expense worthwhile."

Sales support. The last part of Szabados' vision is full of sales representatives outfitted with Macintosh laptops displaying the latest information about their companies' products. "Productivity of the sales force appears to be the concern of all our corporate customers," he said. "And if sales reps sell drugs to doctors with the Mac they carry with them under their arm, they will also sell the Mac." □

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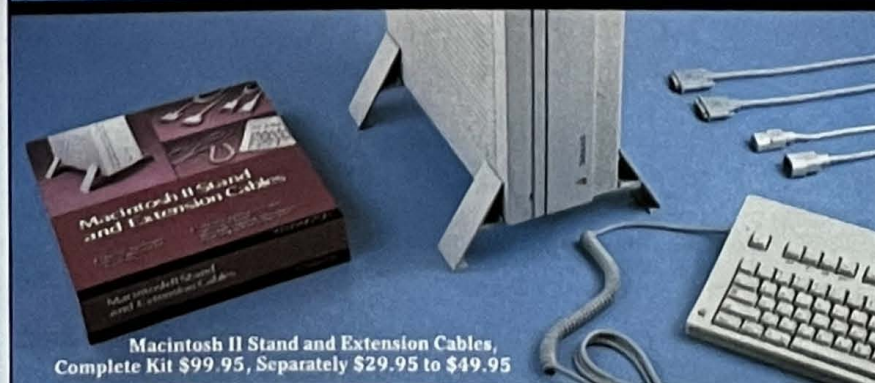


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Egghead to carry CD-ROM '3-paks'

Issaquah, Wash. — Egghead Discount Software, the largest software retailer in the United States, last week made a major marketing commitment to CD-ROM. Egghead stores will carry the CD-ROM "3paks" recently announced by Apple at \$199, \$50 less than the suggested retail price.

Each Egghead outlet will be fitted with an AppleCD SC CD-ROM drive to demonstrate the applications. The 192-store chain will soon devote a section of each store to Mac- and MS-DOS-compatible CD-ROM hardware, software and peripherals. □

Apple *Continued from Page 127*

"It was clear to even the most pessimistic observer that [the DRAM excess] was a short-term tactical issue that is now behind the company," said Peter Rogers, an analyst with Robertson Stephens & Co. of San Francisco. "If the problem did have its roots in management shortcomings, the company rebounded and regrouped impressively. It has turned a potential demerit into a gold star."

The 44 percent jump in sales during the quarter bodes well for the rest of the year, Rogers said. "The acceleration of sales came in March. Current trends are very strong, and the momentum is clear and sustainable."

Net sales for the first six months

of the fiscal year climbed to \$2.652 billion, a 39 percent increase from \$1.91 billion for the same period a year ago. In the two days following the April 18 announcement, Apple stock gained \$1.625 to close at \$40.875.

"The trend with Apple's sales through dealers is going in the right direction," said Shearson Lehman's Van Dorsten. "Valuation of the stock has suffered, but the market is warming up. Apple will have a good year." Van Dorsten said that he is not currently recommending Apple stock, but he foresees endorsing it in the future.

Charles Wolf, an analyst with First Boston Corp. in New York, was so impressed with Apple's rebound that he has upped his

earnings projection for the year from \$3.35 to \$3.50 based on second-quarter sales. "I think they'll have stronger sales than even Apple expects," Wolf said.

He cited the middle-of-the-line Macintosh SE/30 and the Mac IIcx as new products that will form the backbone of Apple's sales. "The IIcx is the flagship of the future," Wolf said.

Wolf said that Apple is ready to capture more of the personal computer market. "Is Apple truly stuck at 15 percent market share? No. It will go much higher, especially when it implements its new platform pricing (on low-end models)," Wolf said. "It's going to break out of the 15 percent bracket and move into the high teens and low 20s in the '90s." □

Patent *Continued from Page 127*

or not the patent covers other technologies that offer multitasking in windowing environments, Seybold said the "immediate effect of all this will be massive confusion."

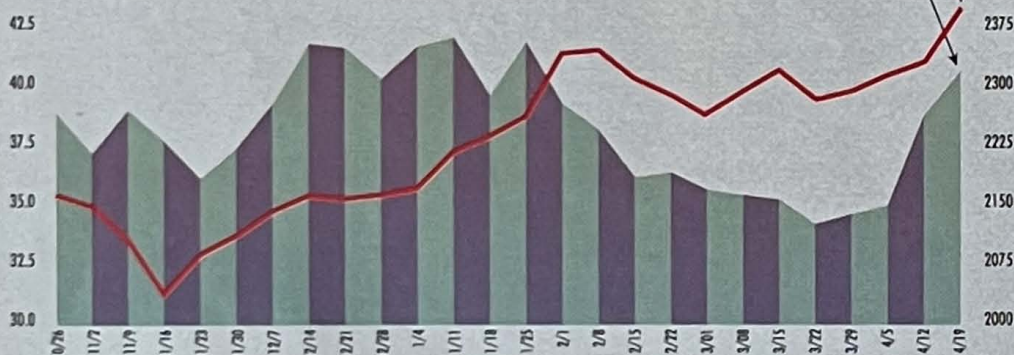
Seybold added that Quarterdeck had filed for more patents covering technology that enables DOS programs to run in other operating environments, such as Unix.

In other software patent news, QuickView founder Paul Heckle announced plans to grant royalty-free license agreements to HyperCard stackware developers who infringe on his HyperRacks patents. Heckle, who said that any HyperCard stack infringes on his patents, wouldn't comment on whether Apple's HyperCard also infringes. □

MarketWEEK

STOCKWATCH

■ Apple stock prices
■ Dow Jones industrial average



Microsoft, Apple push high-tech stocks upward with strong sales returns

Previously embattled Apple and Microsoft led high-tech stocks to higher ground last week despite charting different earnings results for the three-month period ending March 31.

Microsoft Corp. led all stocks with a 14.58 percent gain after posting surprisingly strong earnings

of 73 cents per share. The company had warned investors of possibly lower earnings due to shipment delays and overstocking by distributors. Strong international sales, representing 59 percent of total business for the period, paced the earnings advance for Microsoft.

Apple, on the other hand, forecasted lower fiscal second-quarter earnings two months ago and followed through with a 29 percent drop in net income. Apple's sales, however, soared 44 percent during the same period, pushing the stock 5.84 percent higher as a result.

Macintosh-related stocks

		CLOSING PRICE 4/12/89	CLOSING PRICE 4/19/89	PERCENT CHANGE IN PERIOD	P/E RATIO	ANNUAL HIGH	ANNUAL LOW
MAC-RELATED COMPANIES	Adobe Systems	23.75	23.50	-1.05	21	26.00	15.50
	Aldus Corp.	16.00	15.88	-0.78	14	24.50	14.75
	Apple	38.50	40.75	5.84	12	47.50	33.50
	Ashton-Tate	19.25	21.00	9.09	11	28.75	18.50
	Businessland	12.50	12.50	0.00	12	15.25	8.63
	Microsoft Corp.	48.00	55.00	14.58	20	70.50	45.25
	Motorola Corp.	45.50	44.75	-1.63	13	54.63	35.88
	QMS Inc.	7.88	8.25	4.76	0	12.00	6.00
	Seagate	12.63	13.38	5.94	0	20.63	6.50
	3Com Corp.	26.25	25.50	-2.86	23	28.13	15.63
INDUSTRY INDICATORS	Digital Equipment	97.75	99.00	1.28	10	122.38	86.38
	IBM	110.88	112.50	1.47	12	130.88	106.25
	Sun Microsystems	17.75	17.75	0.00	16	21.13	13.00

S=Reflects stock split

D=Deficit

Compiled by Norrby International Inc., Boulder, Colo.

MARKETWATCH

Business, government and education Macs highly networked

Of the 2.67 million Macs installed worldwide by the end of 1988, Dataquest of San Jose, Calif., estimates that 1.83 million, or 70 percent, are at business, education or government sites, with the rest in homes. Sixty-six percent of the business, government and education Macs are connected to a "true" network, defined as one with three or more computers.

In 1988, 810,000 Macs — 85 percent of total sales — were shipped worldwide to business, education or government sites. Only 15 percent, or 143,000 computers, went to homes.

Dataquest estimates that 700,000 Macintosh network connections were shipped in 1988, including not only LocalTalk connections but also connections over other LANs such as Ethernet or to IBM hosts via LAN-based gateways. This is double the number of Mac connections shipped the previous year.

Total Mac LAN revenue was estimated at \$220 million in 1988, five percent of all LAN revenue. Only technical workstations exceed Macs in LAN connectivity, with 95 percent connected. — By Griffin Dix

Of business, education and government Macs ...

... 66% networked

... 34% not networked

Apple connectivity products \$220

All other LAN revenue \$3,980

1988 Worldwide Mac LAN revenue (in millions)

Source: Dataquest

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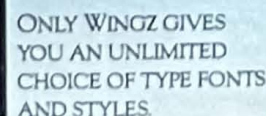
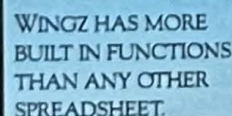
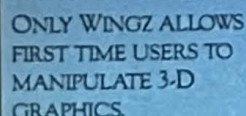
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System 6.0.4 delays new Macs

It seemed only fitting to the Knife that the Mac trade show marathon should be wrapped up in Washington, the ethics capital of North America. Not that three consecutive weeks of schmoozing isn't productive, it's just that it made it a little harder to keep tapped into the Apple electronic grapevine,

that source of many interesting revelations. For instance, it became evident last week that the schedule for both the portable and the 25-MHz IICx has slipped a month. It appears that some hardware modifications caused some time-consuming changes to the upcoming System 6.0.4, which both machines will require. From all indications,

managers are beginning to get nervous about cutting things so close into the fourth-quarter selling season. Apple seems to recognize that, as one insider put it, the channels can't manage new announcements any later than Oct. 15; it plays too much havoc with the Christmas selling frenzy. And, since the 25-MHz IICx will deal a blow to Mac IICx and

IICx sales, Apple realizes it has to have the new machine ready for volume delivery the day the announcement is made.

While Apple is in a sweat over its rapidly proliferating product line, multiple sources tell the Knife that Claris may also have a trick or two up its sleeve. The most persistent rumor is that a Windows version of FileMaker is in the works. Skeptics point out that when Claris does go public, Apple will certainly be the largest single stockholder and thus would not be inclined to rally around the Windows standard. These sources argue, however, that Apple loves the bottom line more than Apple hates Windows. Claris officials, however, deny that any such product is in the works, although they do admit that the company is a licensed Windows developer and that it did land Windows FileMaker code in the Nashoba deal.

Perhaps before Claris considers branching out to other platforms it will concentrate on either developing or acquiring a spreadsheet to fill the gap in its otherwise well-rounded product line. Although the Knife discovered that Apple's software subsidiary has considered the purchase of Wingz from Informix, nothing came of the discussions. Sources claim one factor that scotched a deal was Claris' low bid.

Patent pending. Also on the intellectual-property front this week is Silicon Beach's SuperCard, which, incidentally, is very likely to beat the company's self-imposed end-of-second-quarter shipping date, judging from reports from non-disclosed beta testers. But there is a minor squabble brewing over a bit-mapped compression algorithm used in SuperCard that is similar to a technology for which Apple has filed patent papers. Although Silicon Beach isn't particularly impressed by patents pending, it at least understands Apple's perspective... Apple wants to discourage third parties from using the technology on other platforms.

Third-party predictions. The Knife sneaked into MacUser's gala Eddy Awards banquet in New York last week. He fell asleep during the keynote by Reebok's CEO ("Reebok uses a lot of Apples and Apple uses a lot of Reeboks") but woke up in time to hear predictions from a band of MacUser columnists. Will Zachmann expects John Sculley to become baseball commissioner. Jim Seymour opined that "the word MACdex will come to mean the smallest possible unit of measurement." And John Dvorak predicted that there would be no presentation by Reebok at next year's event. "No, I'm kidding," he said. "I enjoyed every hour of it."

Nerd role models. Mr. PC and famous drinker Peter Norton made an appearance at the Mac Business Conference to promote his upcoming book, "Inside the Macintosh" (a title he might want to run by Apple legal). All Norton would say about his upcoming package of Mac data recovery, disk management and other utilities is that it will be released in this decade. What really turned the retiring Norton on was talking about his Dewar's Profiles ad campaign. He noted that with Dan Bricklin endorsing Dexter Shoes, consumer products companies are seeking to bask in the reflected glamour of the software industry. "It used to be astronauts and Grand Prix drivers, but now nerds are the new heroes." □

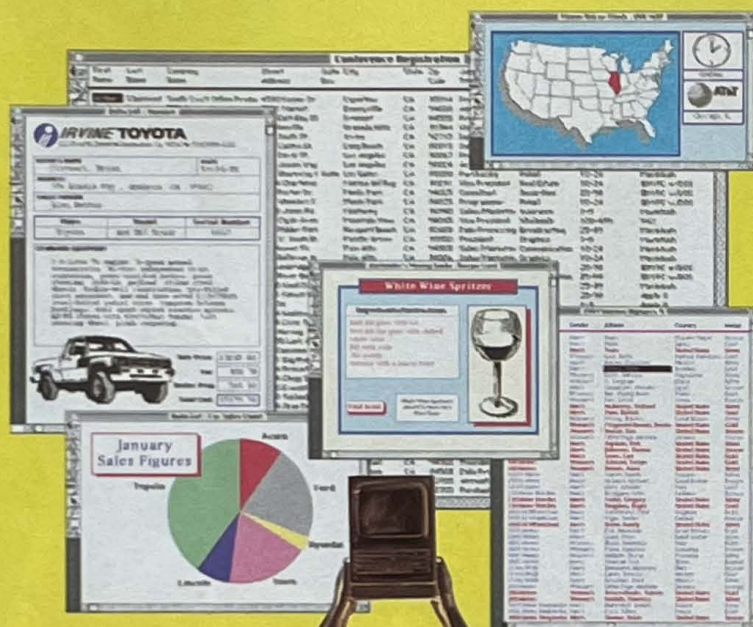
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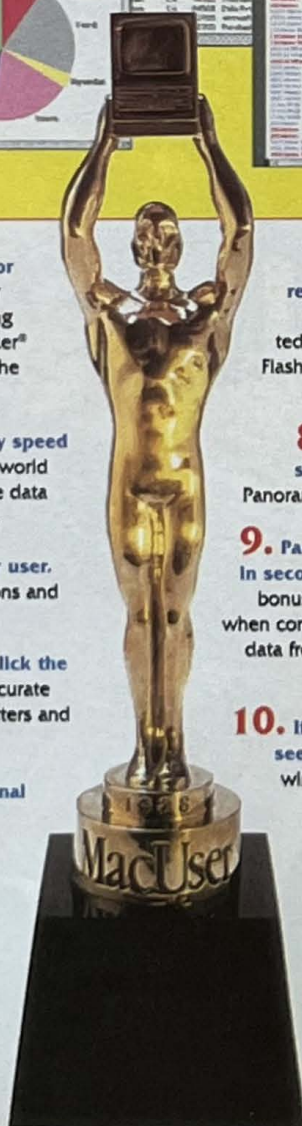
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